VICTORIA REGIONAL RAPID TRANSIT

Victoria / West Shore Link

VOLUME 1

Regional Data and Traffic Information

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Prepared for BC Transit by

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VICTORIA REGIONAL RAPID TRANSIT
Victoria / West Shore Link

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1. Executive Summary

In January 2008, the BC Government released the *Provincial Transit Plan* (PTP). The PTP is focused on expanding fast, reliable, green transit and calls for increased transit ridership, increased mode share and expanded accessible transit services in British Columbia. In response to the goals called for in the PTP, BC Transit initiated this study to investigate the development of a rapid transit link between Victoria and the West Shore.

This report provides an analysis of background information and data describing the forecast growth of population and employment, settlement and urban growth patterns, travel demand and patterns and transit operations in the capital region. The objective of this analysis is to identify the patterns driving demand for transportation services in the region and provide the foundation information upon which to develop alternatives for a rapid transit service that will serve the needs of the growing capital region.

The Capital Regional District (CRD) located on the southern tip of Vancouver. The core municipal area (CMA) of the CRD consists of 3 sub-regions: the Urban Core, in which the urban centre of the region is located, the Saanich Peninsula to the north, and the West Shore to the west. In 2006 the CRD was ranked as the 15th largest metropolitan area in Canada by population with a combined population of approximately 356,000.

The population of Victoria CMA is projected to grow from approximately 349,000 in 2008 to 454,000 in 2038, resulting in an additional 105,000 residents or a 30% increase during this period. The projected 30% increase represents an annual growth rate of 0.9% or about 3,500 new residents each year. The region's population is projected to increase by about 10% in each of the next two decades, after which the rate of growth is forecast to decrease to about 7% between 2028 and 2038. Changes in population distribution over this same period – by geographic area and by age group – will be more significant.

Over the next 30 years, the West Shore is projected to account for more than half of total regional population growth (57,000 people), an 88% increase to the West Shore's population. While the Core area is projected to grow at a much slower rate (15%), it will still account for 37,000 additional residents due to its large base population. The Saanich Peninsula is projected to grow somewhat faster than the Core (25%), and will account for 10,000 additional residents. In 2008 the West Shore made up 18.6% of the Region's population. By 2038 it is projected to expand to 26.9%.

The aging of the region's population will significantly impact the age structure of the region over the next thirty years. While the seniors (65+) population is projected to more than double (+120%) during this time period, all other age groups will grow more slowly than the overall population (30%). The non-seniors population, taken as a whole, will only grow by 11% between 2008 and 2038, less than one-tenth of the seniors' population growth rate.

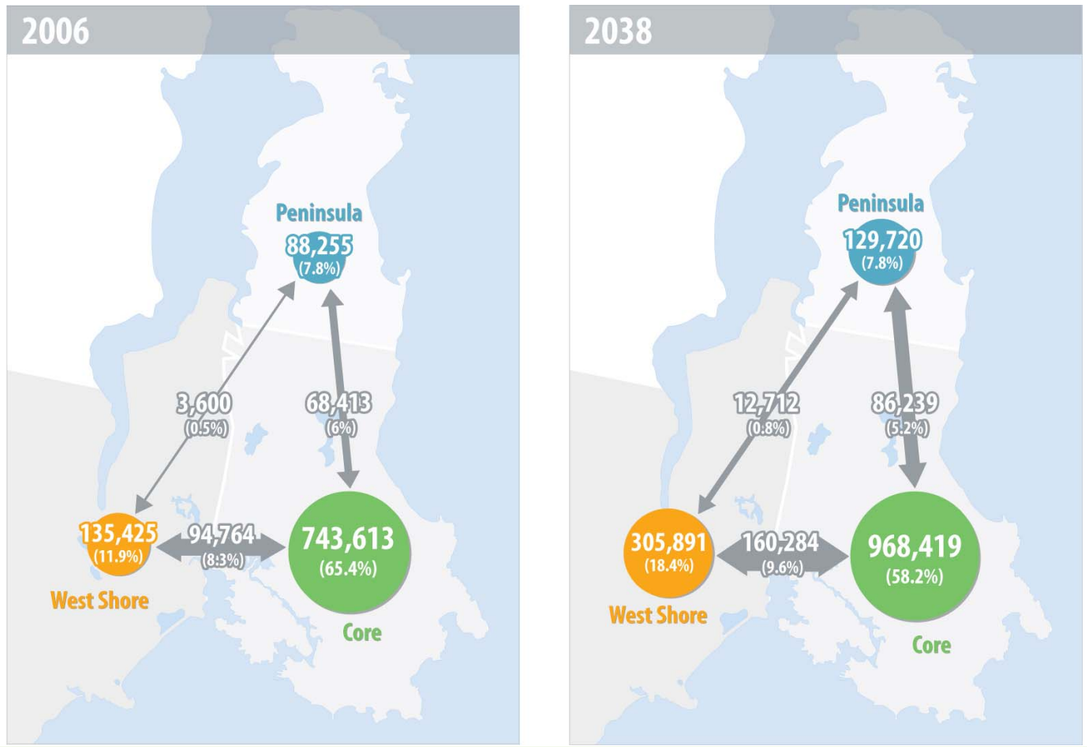
With much faster growth projected among seniors versus the youth and working age populations, it is expected that commuting (to both work and school) will continue to decline in relative importance among reasons for travel in the region. This decline will result in changed travel patterns for the region and will have a significant impact on transit requirements.

Employment in the Victoria CMA is projected to increase from 192,000 in 2008 to 230,000 in 2038, an increase of 38,000 jobs. While the Core area is projected to experience the slowest rate of employment growth (13%), the 20,000 additional jobs will still account for more than half of all the new jobs created in the region over the next thirty years. The West Shore is projected to have the fastest rate of employment growth during this period, with 14,500 additional jobs resulting in a 67% increase. The West Shore will see its share of overall employment increase from 11% to nearly 16%. Employment in the Saanich Peninsula is projected to grow at a rate close to the regional average, with a modest increase of 3,600 jobs over the next 30 years.

Employment growth is projected to be slower than population growth in each of the three sub-areas. It is projected that the Core area will continue to have a higher number of jobs relative to population than the regional average, while the West Shore will have a lower number. As a result, the amount of commuting from the West Shore to the core will continue to increase as the population grows, with the number of commuters likely doubling during this period.

Based on the updated CRD regional transportation model overall total trips in the region are projected to increase from roughly 1.136 million daily trips in 2006 to 1.66 million daily trips by 2038 as illustrated below in Figure 1.1.

Figure 1.1 - 2006 and 2038 Two Way Travel Flows



Key aspects of the forecast increase in daily travel over the period 2008-2038 are;

- Trips within the Core area are projected to increase by 30%.
- Trips within the Core area will still account for more than half of total travel in 2038.
- Internal West Shore trips will account for about one-third of the growth in travel in the region and increase from 12% to more than 18% of all regional travel.
- Trips within the Saanich Peninsula are projected to increase 47% during this period, very close to the overall rate of increase in regional travel.
- Trips between the West Shore and the Urban Core are projected to increase 69%.
- Trips between the Saanich Peninsula and the Core area are projected to increase 26%.
- Trips between the West Shore and the Saanich Peninsula will experience one of the fastest percentage growth rates during the period; however, this will remain a relatively small travel market, accounting for 0.8% of all regional travel by 2038.

Key findings from the analysis of the regional data on population, employment and travel growth that directly relate to rapid transit planning include:

- Trips between the West Shore and the Urban Core represent the largest inter-sub-regional travel market. Travel between these sub-regions is projected to increase 69% during this period, significantly faster than the overall increase in regional travel. The share of total travel will increase from 8% to nearly 10%.
- It is projected that the core area will continue to have a higher number of jobs relative to population than the regional average, while the West Shore will have a lower number. As a result, the amount of commuting from the West Shore to the core will continue to increase as the population grows, with the number of commuters likely doubling during this period.
- With the 15-24 age group projected to decrease in size over the next thirty years, growth in transit use in this market will have to rely on capturing a greater share of the market.
- With much faster growth projected among seniors versus the youth and working age populations, it is expected that commuting (to both work and school) will continue to decline in relative importance among reasons for travel in the region. This decline will result in changed travel patterns for the region and will have a significant impact on transit requirements.
- Overall, the CRD expects to see a net population increase of about 105,000 residents over the next 30 years. Of those, almost 60,000 are projected to settle in the West Shore, nearly doubling the West Shore's current population in that time period. Comparatively, the Urban Core population will increase by slightly more than 37,000 and the Saanich Peninsula by slightly more than 10,000.
- Trips within the Core area are projected to increase by 30% over this time period.
- Trips within the Core area will still account for more than half of total travel in 2038.
- Internal Core area trips will account for more than 40% of the growth in regional travel during this period.

It is recommended that planning for the development of a rapid transit service for the capital region address the following strategic objectives:

1. Increasing the capacity to move people from the West Shore to the urban core area.
2. Providing a reliable all day service that will address the projected change in travel patterns as the percentage of the population in the seniors category significantly increases.
3. Provide a highly reliable and attractive service for commuters to the core given the projected high number of jobs expected to remain in the urban core area.
4. Provide a high capacity service in the core area to address the fact that internal trips within the core will increase by 30% and will account for over half of all regional trips by 2038.

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The Capital Regional District (CRD) is located on the southern tip of Vancouver Island and is comprised of 13 municipalities and three electoral areas. The region consists of 3 sub-regions: the Urban Core, in which the urban centre of the region is located, the Saanich Peninsula to the north, and the West Shore to the west. In 2006 the CRD was ranked as the 15th largest metropolitan area in Canada by population with a combined population of 330,088.

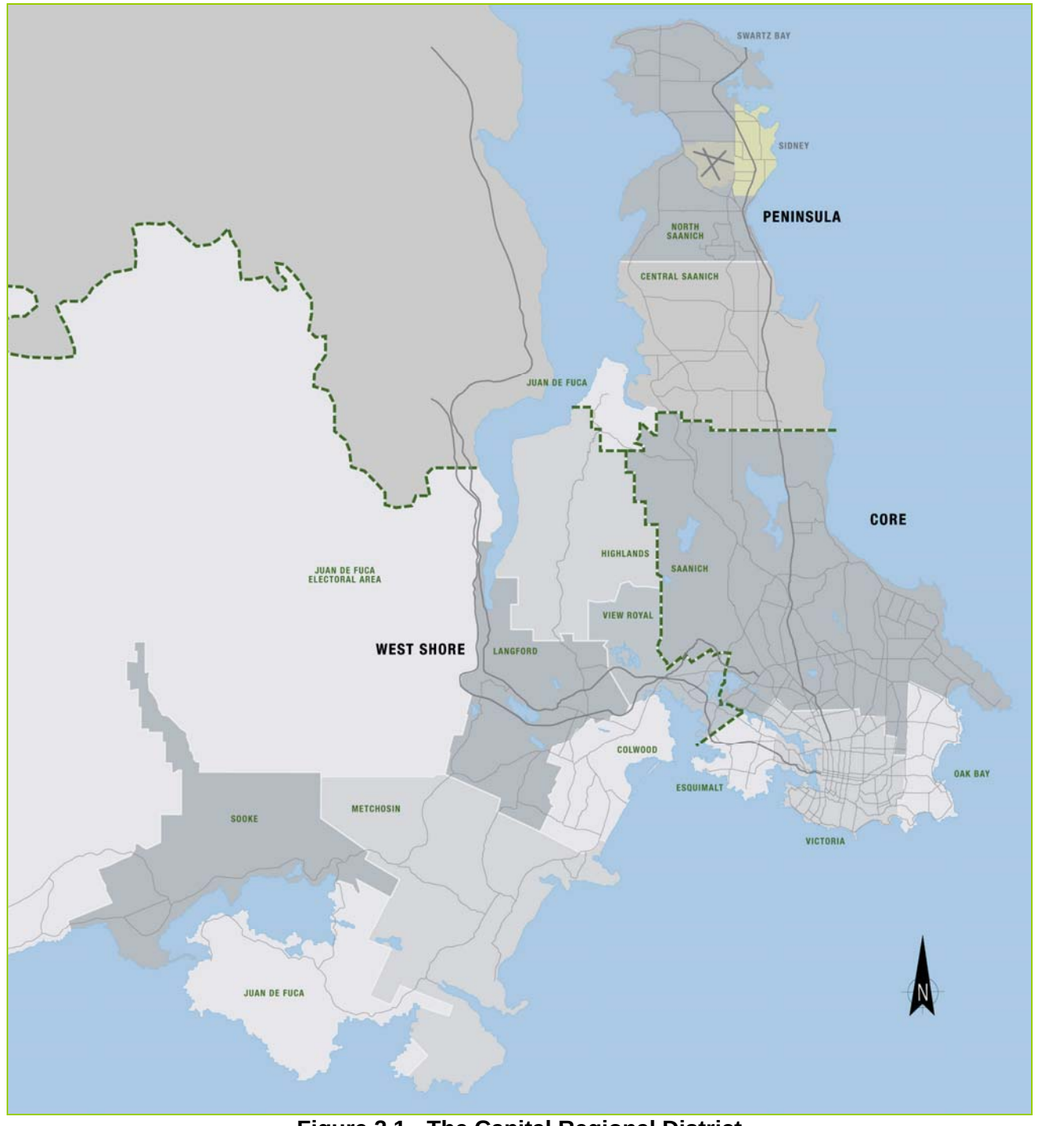


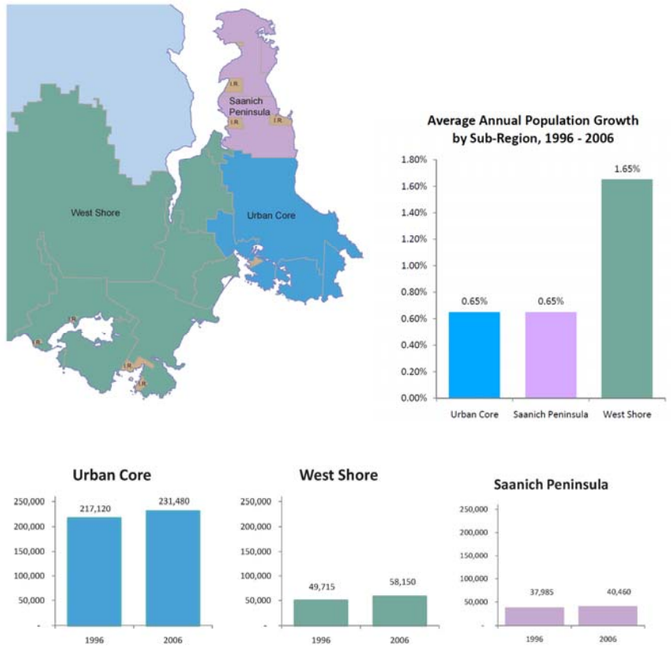
Figure 2.1 - The Capital Regional District

2.1 The Urban Core

The urban core sub-region is comprised of the City of Victoria and the District Municipalities of Saanich, Esquimalt, and Oak Bay. The majority of the CRD population lives in this sub-region and the area can be characterized as urban.

Table 2.1 - Core Area Municipalities

Municipality	Population	% of Total Population
Saanich	108,265	49%
Victoria	78,057	35%
Oak Bay	17,908	8%
Esquimalt	16,840	8%
Total	**221,070**	**100%**



CRD Population Growth by Sub-Region 1996 - 2006

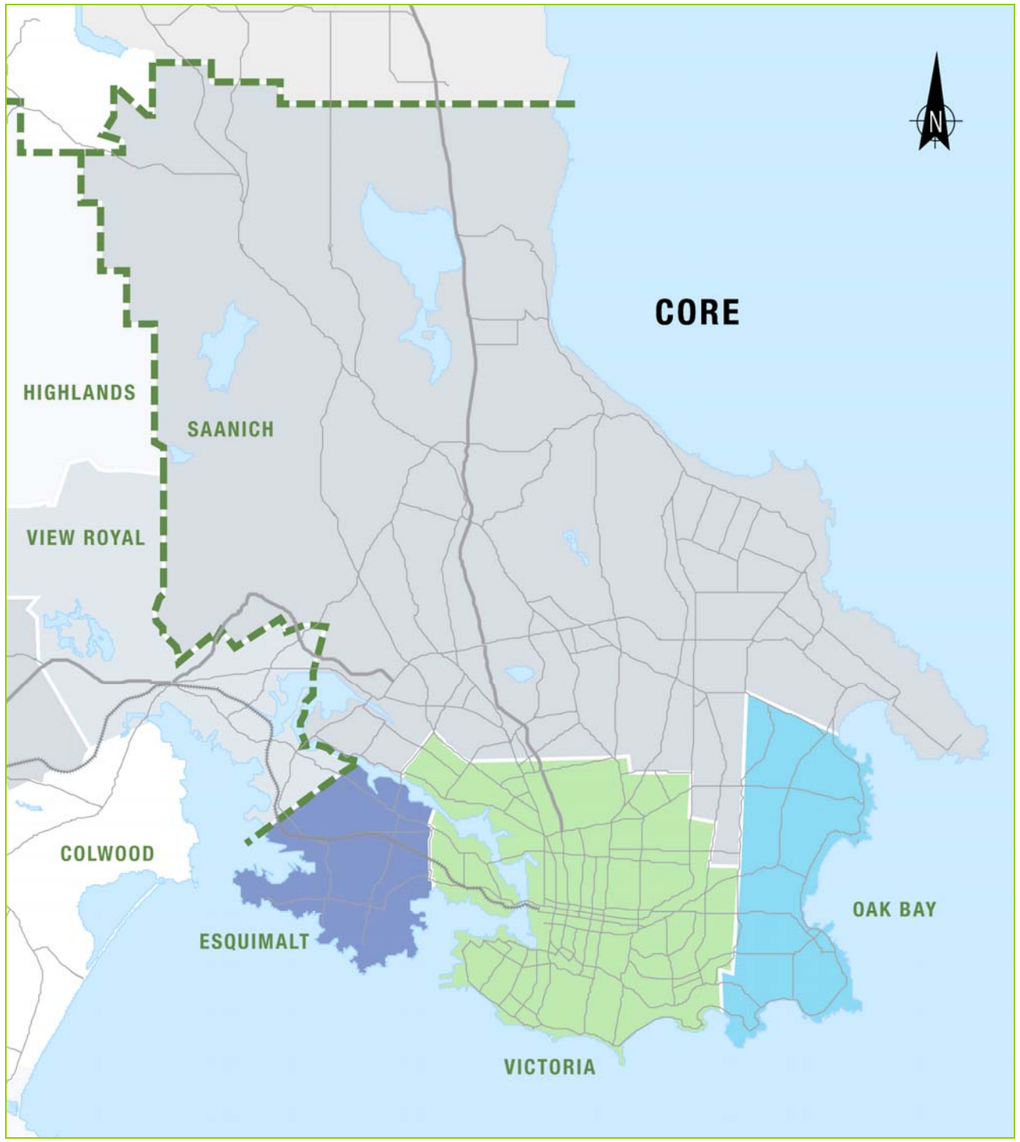


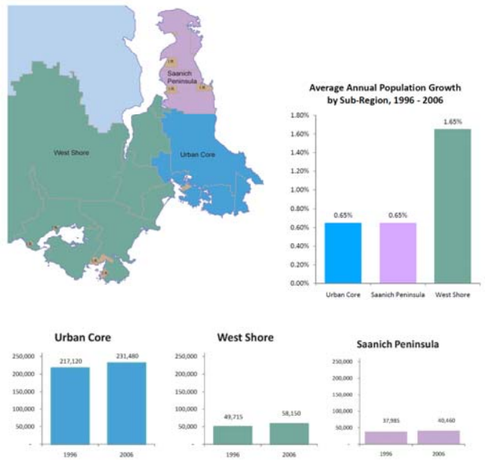
Figure 3.4 - Core Area Municipalities

2.2 The West Shore

The West Shore is comprised of the City of Colwood, the City of Langford, the Town of View Royal, and the District Municipalities of Highlands, Metchosin, and Sooke. This portion of the region includes suburban and rural areas and is experiencing the most rapid population growth within the Capital Regional District.

Table 5.2 - West Shore Municipalities

Municipality	Population	% of Total Population
Langford	22,489	32%
Colwood	14,687	21%
Sooke	9,704	14%
View Royal	8,768	12%
Metchosin	4,795	7%
First Nations Land	4,562	7%
Juan de Fuca Electoral Area (part) of CRD	3,801	5%
Highlands	1,674	2%
Total	**70,480**	**100%**



CRD Population Growth by Sub-Region 1996 - 2006

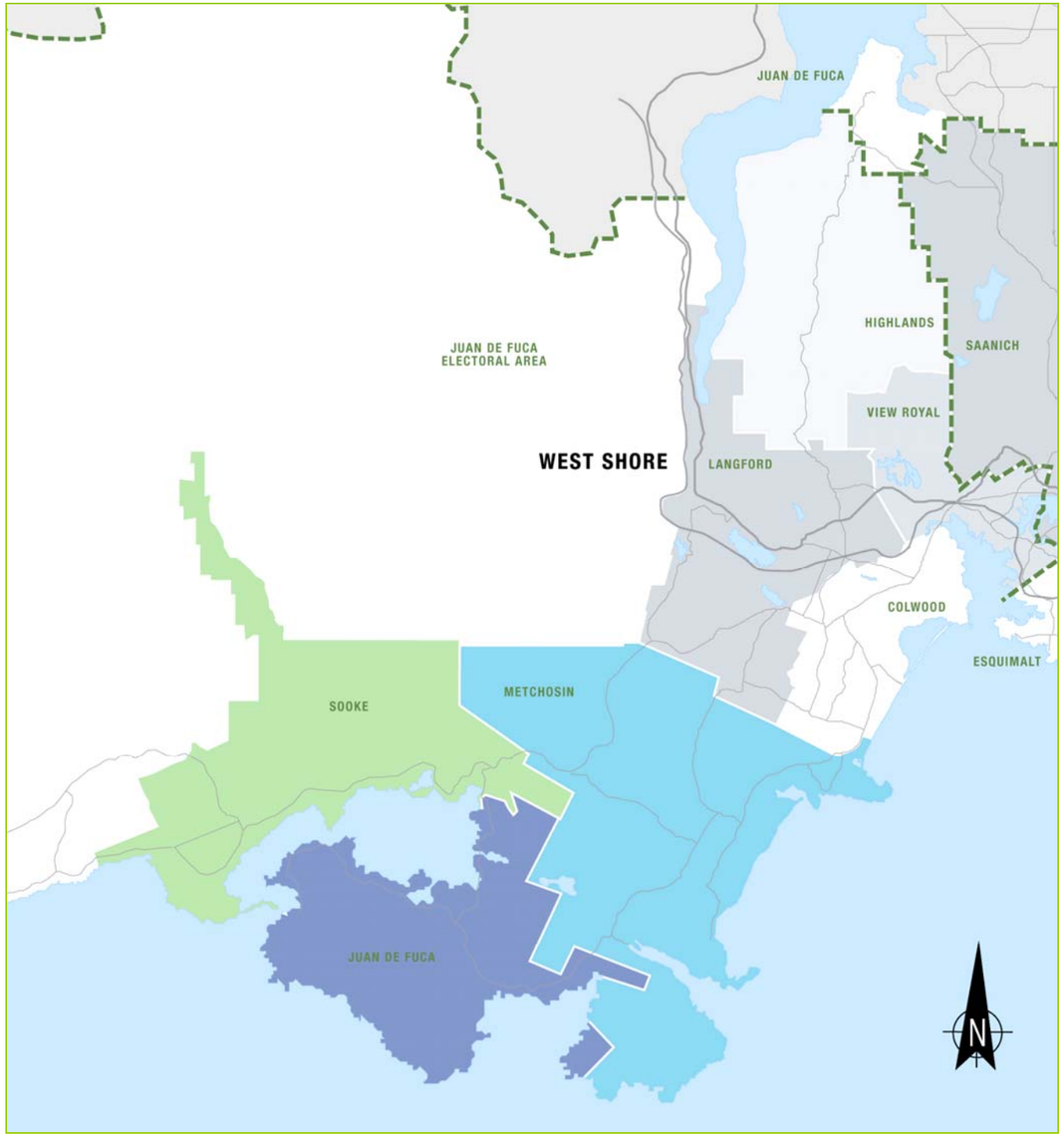


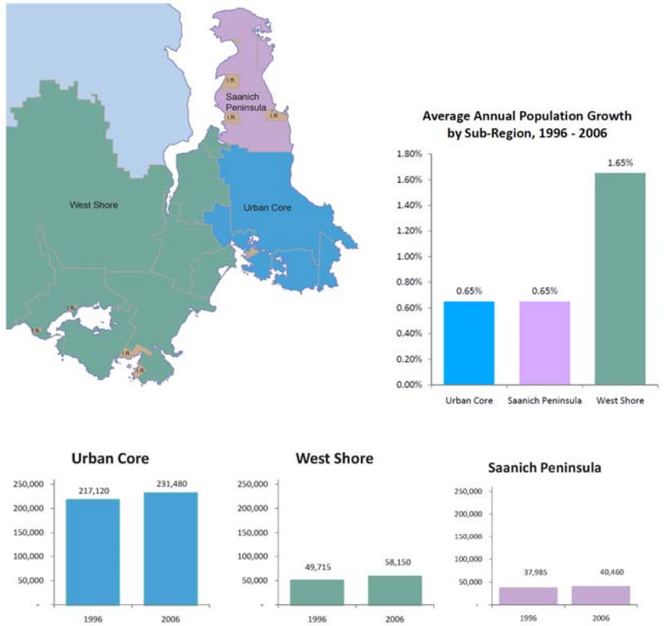
Figure 6.7 - West Shore Municipalities

2.3 The Saanich Peninsula

The Saanich Peninsula consists of The District Municipalities of Central Saanich and North Saanich, and the Town of Sidney. The sub-region lies to the north of the Core area. The population growth in this part of the region is relatively stable and the area is mostly rural with some suburban development.

Table 8.3 - Saanich Peninsula Municipalities

Municipality	Population	% of Total Population
Central Saanich	15,745	42%
Sidney	11,315	30%
North Saanich	10,823	28%
Total	**37,883**	**100%**



CRD Population Growth by Sub-Region 1996 - 2006

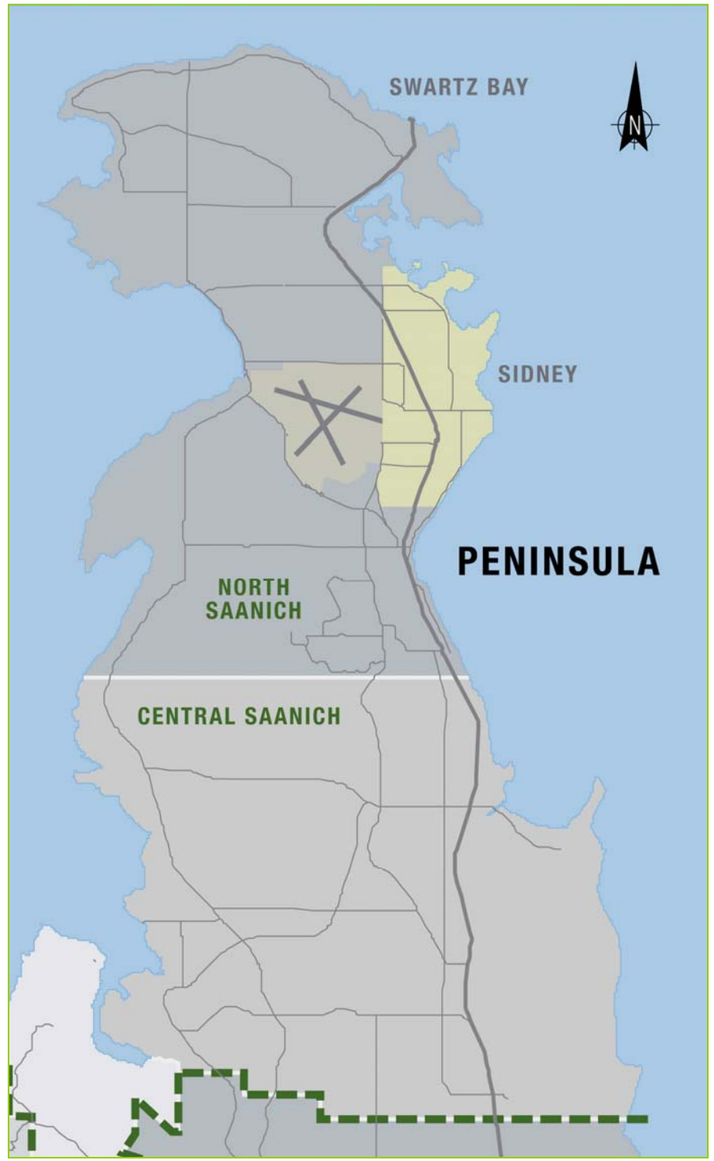


Figure 9.10 - Saanich Peninsula Municipalities

3.1 Introduction

A number of studies of have been complete examining options for improving the transportation system for the capital region. A review of the previous studies was completed to understand the historical context and the present day framework within which the rapid transit connection between Victoria and the West Shore must fit.

3.2 CRD Regional Growth Strategy

The CRD's Regional Growth Strategy, adopted in 2003, lays out a 25-year vision for the region, as well as a plan of action to reach that vision. The Regional Growth Strategy includes eight strategic initiatives:

1. Keep urban settlement compact
2. Protect the integrity of rural communities
3. Protect regional green and blue space
4. Manage natural resources and the environment sustainably
5. Build complete communities
6. Improve housing affordability
7. Increase transportation choice
8. Strengthen the regional economy

Given the importance of the relationship between transportation and land use, the first initiative, *keep urban settlement compact,* is a key for transit. Under this initiative, future growth would be largely limited to the Regional Urban Containment and Servicing Area, and concentrated in the Metropolitan Core in downtown Victoria and in eight Major Centres developed as transit-focused, dense and mixed-use communities as shown on Figure 3.1.

The Regional Growth Strategy states that part of the reason for developing this land use pattern is to support a high capacity transit network connecting these nodes. The settlement pattern will form the framework on which the future transit network can be built. Initiative #5, *build complete communities,* which promotes mixed-use development in the Metropolitan Core or Major Centres, also supports transit.

Initiative #7 promotes an increase in transportation choice. The Regional Growth Strategy proposes to do this by coordinating land use and transportation to create a settlement pattern that is less reliant on the automobile and provides more opportunities for residents to get around by walking, cycling, or taking transit. The Regional Growth Strategy also proposes the adoption of a Regional Transportation Strategy within two years. This strategy would aim to enhance transportation choice and improve the market share for walking, cycling and transit. The strategy includes specific performance targets such as a 2026 PM peak period transit mode share target of 10%. This represents a relatively modest increase from the current 7% PM peak transit mode share.

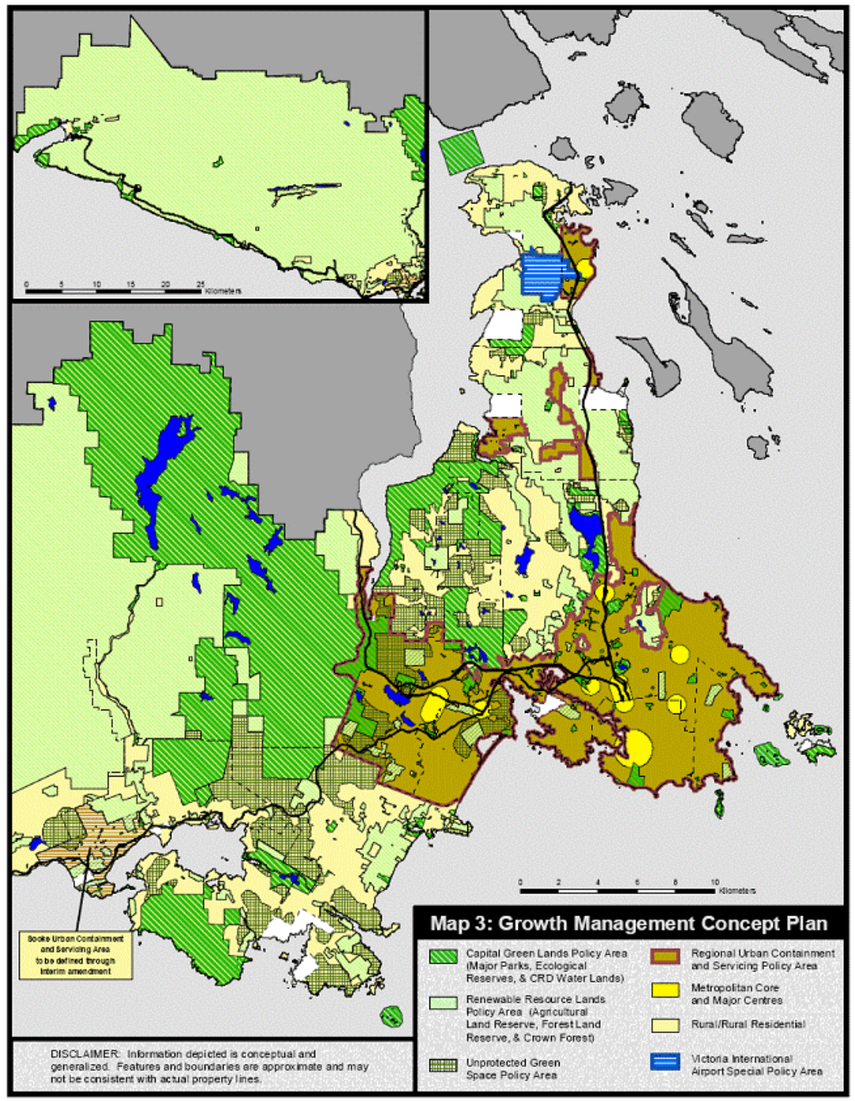


Figure 3.1 - CRD Regional Growth Strategy

3.3 Regional Transportation Strategy *(TravelChoices)*

TravelChoices, the CRD's long range transportation plan, was adopted in 2005. *TravelChoices* establishes strategies to realize a balanced, accessible, and affordable transportation system, and is based on the Regional Growth Strategy's strategic initiative to increase transportation choice. *TravelChoices* further refines the Regional Growth Strategy's transportation vision and includes a series of strategies to achieve that vision.

The mission of *TravelChoices* is to significantly increase the proportion of people walking, cycling, using transit, ridesharing, or using other alternatives to driving alone. This will be achieved through the following strategies:

1. Integrating land use and transportation policies
2. Enhancing alternatives to driving alone
3. Managing transportation systems in an effective manner to maximize the mobility and safety of priority modes
4. Managing transportation investments in a fiscally responsible and strategic manner

Three strategies deal specifically with movement of commercial goods:

5. Accommodating large commercial vehicles through a core network of major routes
6. Developing consistent routes and regulations for commercial vehicles
7. Managing congestion during peak hours

TravelChoices projects an additional 400,000 daily person trips by 2026, and targets 75% of these additional trips to be made by walking, cycling, taking transit, or ridesharing. The strategy sets target mode share increases of 15% for walking, 5% for cycling and 10% for transit.

Specific strategies to increase transit market share include:

- Increasing accessibility by expanding services, including more direct and higher frequency service
- Planning and implementing high capacity, frequent, and fast transit service between the West Shore, Saanich Peninsula, and Victoria
- Coordinating new transit priority measures
- Ensuring transit is an integral partner in highway planning, including protecting rights of way for future transit corridors
- Improving customer information and amenities, including more comfortable bus shelters and real-time route information at major transfer and boarding locations
- Improving transit exchanges at major or strategic centres and ensuring that exchanges are bike and pedestrian friendly
- Adding park and ride lots at several strategic locations throughout the region to provide transit access to lower density areas
- Developing fare incentives and new fare strategies to increase ridership
- Protecting existing rail corridors for possible high capacity transit services in the future

TravelChoices identifies potential high-capacity transit corridors, including connections from downtown Victoria to U-Vic, the West Shore, and the Saanich Peninsula via uptown as shown in Figure 3.2.

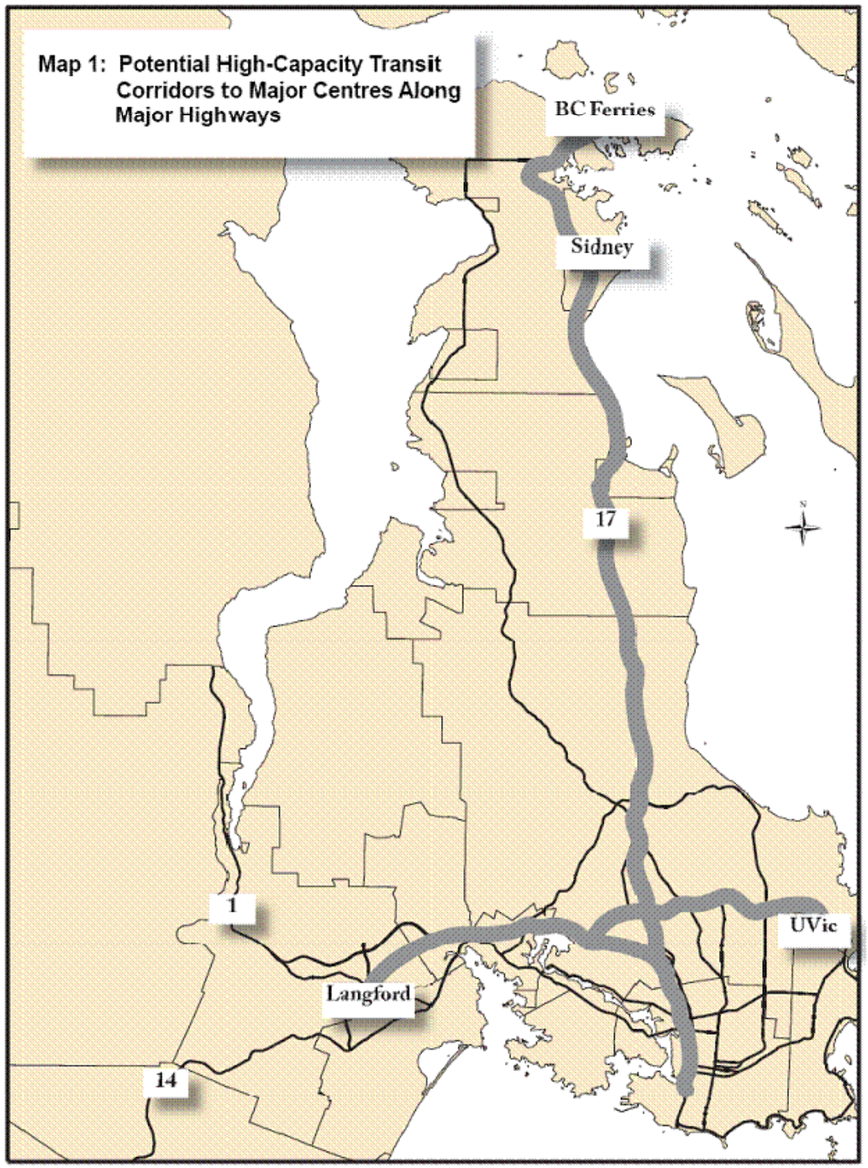


Figure 3.2 - *Travel Choices* High Capacity Transit Corridors

Source: CRD *Travel Choices*

3.4 Official Community Plans

There are 13 municipalities in the region, and each has its own Official Community Plan (OCP). Many of the OCPs include common themes around transit, transportation, and land use. A summary of the salient features of the OCPs is provided below.

Transit supportive land use

- Sustainability and the need to implement greenhouse gas reduction targets are two overarching themes in many of the OCPs
- Many OCPs call for a closer link between land use and transportation planning
- Most OCPs include plans to concentrate future growth into one or more nodes with higher densities, mixed uses, and pedestrian and transit-supportive land use and design. These include the major centres outlined in the Regional Growth Strategy, but also include smaller nodes, such as village centres or neighbourhood centres
- Several OCPs also propose concentrating development along major transit corridors. This is typically in addition to the nodes described above
- Several OCPs limit growth to within the urban growth boundaries, as laid out in the Regional Growth Strategy

Transit

- Most of the OCPs propose to provide a greater range of transportation choice in order to reduce the emphasis on automobile travel. They typically prioritize walking, cycling, and transit in their transportation plans
- Several OCPs outline support for rapid transit to create regional linkages
- Many of the OCPs call for more convenient local transit for travel within municipalities and within sub-regions such as the West Shore and the Saanich Peninsula

Table 3.1 provides community specific highlights from the OCPs relating to transit and transit-supportive land use policies.

Table 3.1 - Summary of Official Community Plans Relating to Transit and Transit-Supportive Land Use

Municipality	Year adopted	Land use	Transit and Transportation
City of Victoria	2010*	• part of a larger sustainability framework integrated transportation and land use planning • development will be transit oriented and pedestrian friendly • supports a strong and vital downtown, which is designated as the Metropolitan Core in the RGS • guiding principle is an integrated approach to transportation and land use planning • higher density growth along transit corridors	• reduced emphasis on private vehicles and parking • supports transit to link residential, commercial, and major work areas, with emphasis on service to downtown for work and shopping • develop the transportation system so options for rapid transit can be retained, recognizing Douglas and/or Government Streets as preferred corridors
District of Saanich	2008	• emphasizes linking land use and transportation planning • supports urban containment boundary and designated major centres in the RGS	• reduce the length and number of SOV trips • provide a choice of alternative modes • achieve more balanced system by emphasizing traffic calming, transit priority, pedestrian & cycling infrastructure
Township of Esquimalt	2007	• encourage mixed land uses that facilitates walking, cycling, and transit use while reducing SOV trips • concentrate development along Esquimalt Road corridor	• includes policies to support transit, including minibus service for areas with high seniors population and ferry service between West Bay and Victoria • supports developing the E&N rail corridor as multi-use, and supports this as a potential future transit corridor
District of Oak Bay	1997	• enhance the pedestrian friendly nature of Oak Bay Village • supports some additional multiple family housing in the Village	• one goal is to develop more convenient public transit, especially for travel within Oak Bay
Town of View Royal	2010*	• community vision for walkable neighbourhoods • influence future development patterns in order to facilitate transit and other alternatives to driving • establishes an urban growth area which is in line with the RGS	• recognizes View Royal's regional role as a link in major transportation systems, and recognizes the need for planning a future rapid transit corridor • less reliance on automobiles
City of Langford	2008	• envisions a multi-nodal pattern of development with a city centre, village centres, mixed use employment centres, business or light industrial centres, and neighbourhood centres • aims to ensure that these centres are transit supportive through density and urban design features	• supports multimodal transportation, with priority for walking, cycling, and transit. • Supports increased transit within Langford and within the West Shore • based on a bus rapid transit link with Victoria, along with a future commuter rail service on the E&N corridor
City of Colwood	2008	• envisions a multi-nodal pattern of development with a city centre, village centre, mixed use employment centres, and neighbourhood centres • aims to ensure that these centres are transit supportive through density and urban design features • Also promotes higher densities along major transit corridors	• supports multimodal transportation, with priority for walking, cycling, and transit. • Supports increased transit within Colwood and within the West Shore • based on a bus rapid transit link with Victoria, along with a future commuter rail service on the E&N corridor
District of Metchosin	2005	• maintain the rural nature of the community, which is outside the urban containment area designated in the RGS	• encourages Metchosin park and ride for transit use
District of Highlands	2007	• a key goal is to retain and strengthen the rural character of the community	• supports provision of public transit in the Highlands that is appropriate to the conditions
District of Sooke	2009*	• Smart Growth approach to reduce sprawl • calls for closer link between transportation and land use planning • higher densities and mixed uses in the Town Centre	• Smart Growth approach to encourage more sustainable transportation • Transit as part of a safe and efficient transportation network. Promote transit linkages with the rest of the transit system.
District of Central Saanich	2008	• strongly supports maintaining rural areas by concentrating new development in the urban settlement area • encourages walkable neighbourhoods	• encourages the development of a balanced transportation system with reduced dependence on private vehicles • calls for better local transit connections to main commuter routes along the Highway 17 corridor
Town of Sidney	2007	• promotes a Smart Growth approach to planning • in line with the RGS • complete community with compact, pedestrian-oriented development • maintains downtown (which is designated as a Major Centre in the RGS) as the commercial centre for the northern Saanich Peninsula, and to intensify residential uses downtown.	• supports greater transportation choice • calls for further development of express buses between Swartz Bay and Victoria, with stops in Sidney and the Airport • improved transit connections between Sidney and other parts of the Saanich Peninsula
District of North Saanich	2007	• maintain current rural agricultural and marine character of the community • located entirely outside the urban containment area designated in the RGS	• encourages transit as an alternative means of transportation and supports park and rides at appropriate locations • encourages transportation by bicycle by creating a bicycle network as a means of reducing vehicle traffic and associated emissions

*Denotes OCP in progress or in draft form

3.5 E & N Study

In July 2010, Ministry of Transportation and Infrastructure released a comprehensive review of the viability of the Esquimalt and Nanaimo (E&N) Railway corridor titled, *Evaluation of the E&N Corridor*.[1] The E&N study conducted a market assessment of the E&N rail line that analyzed several markets including freight service, passenger service, tourist service and commuter rail. This report also addressed infrastructure condition, cost of rehabilitation and a determination of the economic circumstances needed for future success of rail. Results and recommendations of the study were;

- The track structure is in fair to poor condition. The track has poor drainage, decayed wooden ties, worn and loose rail joints and vegetation overrun.
- Long-term viability of the E & N Rail Line is dependent on the success of the freight market, and current volumes do not provide enough revenue to support upgrading the line
- The commuter rail assessment was based on providing a service consisting of 6 stations with a 30-minute frequency and a 30-minute trip time between Victoria and Langford The service would only run 10 hours a day (6:00 am to 11:00 am and 3:00 pm to 8:00 pm), Monday to Friday. Eight to twelve (8-12) self-propelled rail cars running in 2 to 3 car trains would be required to meet service and capacity goals. The rail cars would be diesel powered
- A six-station, 17 km line between Victoria and Langford would require between $90 million and $165 million of capital investment in rail line improvements and grade separations
- The study found that the service would be unable to meet the 30-minute trip time goal with the minimum $90 million investment. 'Best Case' times without additional investment were 36-48 minutes
- Significant track rehabilitation and grade separated crossings would be required to meet the 30-minute trip travel time
- Ridership estimates in conjunction with the estimated costs yield a high per passenger cost to implement. Based on a 25 year life for the capital improvements with no grade separations (i.e. capital costs at the lower end of the estimates) results in an average cost per passenger trip of $50 to $60. Operating costs represent $20-$23 of the per passenger cost.

The evaluation concluded the size of the travel market for commuter service from the West Shore Communities into Victoria, does not generate the ridership to justify a commuter rail service. Higher densities of development and a larger commuting population base headed into Esquimalt and Victoria would be more supportive of a commuter rail concept than the current situation.

Evaluation of the E&N rail corridor for use as a rapid transit corridor is undertaken in Volume 2.

[1] Prepared by the IBI Group

3.6 Other Regional Transit Studies

The following related studies have been referenced in summary form as an information source.

- The Summary Report for the 1994 CRD project Regional Development and Transportation Strategies for the Capital Region evaluated the feasibility for Light Rail Transit between Downtown and the West Shore by 2010.
- In 1996, the Provincial Government funded an alignment evaluation study for a LRT line between Downtown and Langford located primarily on Douglas Street and the Galloping Goose. A follow-up study assessed the costs and a basic operating plan for a commuter rail style of service on the E&N between Duncan and Victoria.
- In April 2005, the CRD adopted the *TravelChoices* Strategy as the long term plan for the development of transportation networks including goals and objectives for a high capacity transit priority network for the region.
- In June 2005, BC Transit published the Rapid Transit Network Development for the Victoria Region. This is primarily a strategic planning document which gives an overview of vehicle, infrastructure and service concept plans for the overall rapid transit network.
- In October 2005, BC Transit published the Douglas Street / Highway 1 Transit Priority Study which provides a detailed analysis of the service, operational, and infrastructure requirements for a Rapid Bus alignment on Douglas Street between Downtown Victoria and Town and Country Centre.
- In December 2007, BC Transit released Western Communities Transit Priority Project – Problem Definition Report which gives details on the road, intersection, operational, and service requirements for an extension of the Rapid Bus alignment from Town and Country to Langford Centre.
- In July 2007 Ministry of Transportation released the Highway 1 Corridor Long Term Strategic Options report. The report summarized the potential range of long term strategic directions and recommendations to guide current and future planning work.
- In January 2008, Communities for Commuter Rail (C4CR) released the West Shore Tram Line Assessment which evaluated the feasibility of commuter rail on the E&N right of way from the Westhills development via Langford Centre and Esquimalt to the terminus on Wharf Street in Downtown Victoria.

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4.1 Regional Population Distribution

The CRD, like the Province of British Columbia, has experienced steady growth over the past several decades. As of the 2006 census, the CRD had a population of approximately 356,000[2] residents living in the region. This represents a net annual growth rate of approximately 0.7% per year from the population of the region a decade earlier.

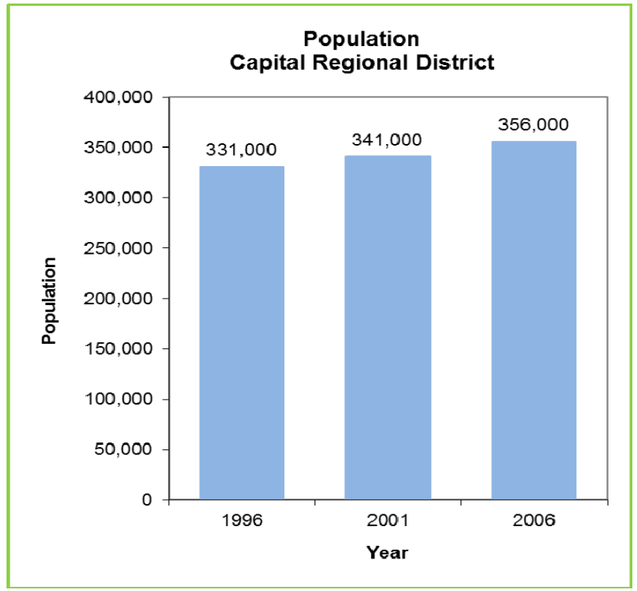


Figure 4.1 - CRD Population Growth 1996 – 2006

While the Region's growth has remained positive for this period, the rate of growth year by year has varied quite substantially from a low of 0.2% in 2000, to a high of 1.4% in 2005[3]. During this time, the growth rate in the West Shore has been very strong, while the Urban Core and Saanich Peninsula have experienced more subdued growth.

As shown in the Figure 4.2, the West Shore has been growing at an average rate of 1.65% per year, a rate 2.5 times that of the Urban Core and Saanich Peninsula (0.65% each respectively). This shift in growth from the Core to the West Shore is expected to continue.

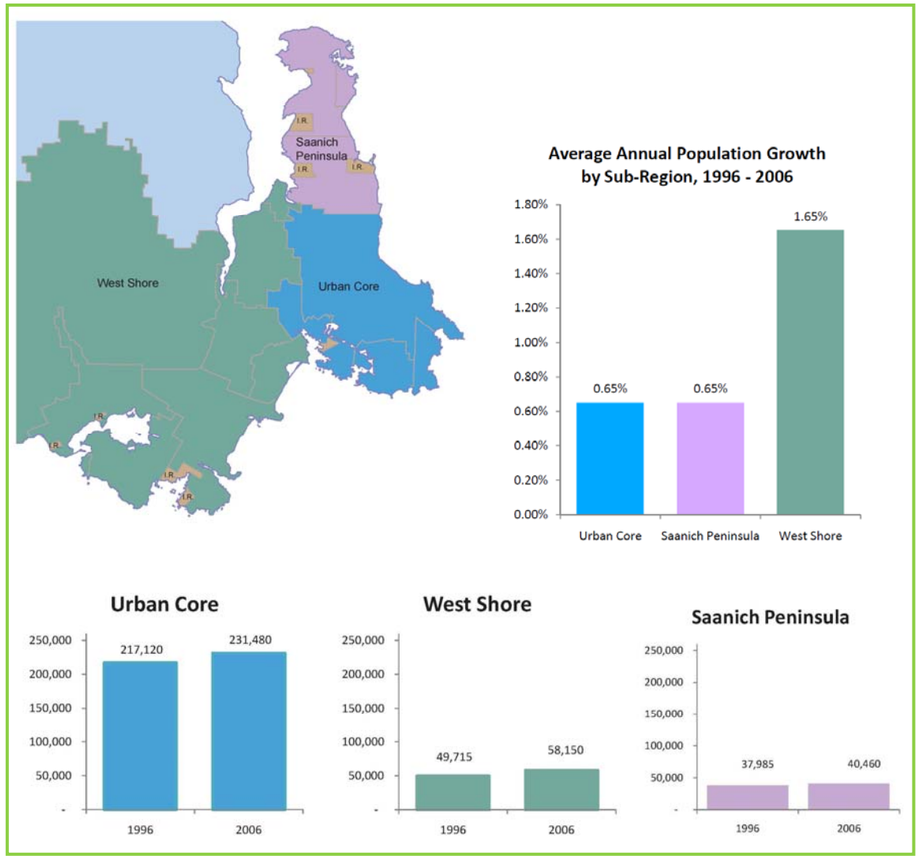


Figure 4.2 - CRD Population Growth by Sub-Region 1996 - 2006

[2] This figure excludes the populations of the Gulf Islands

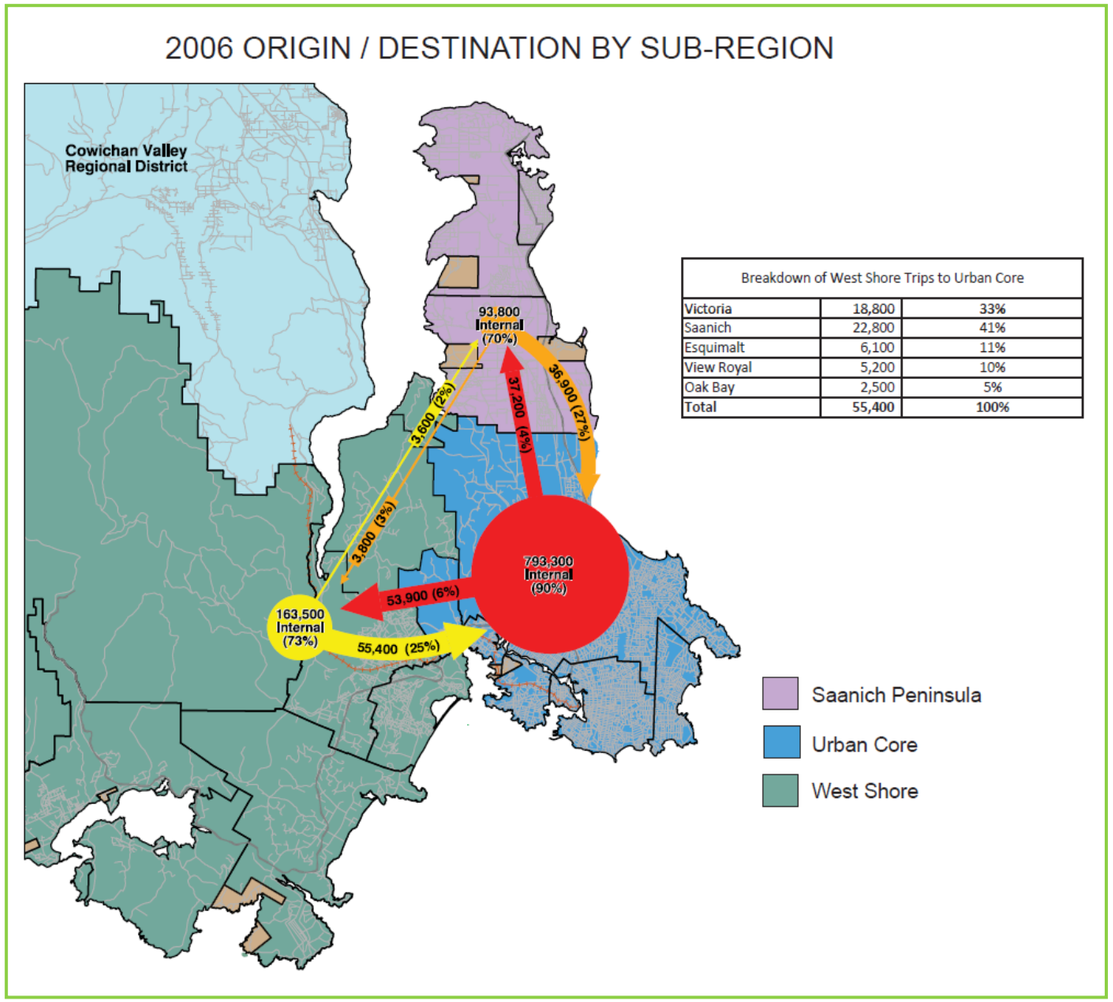
[3] Urban Futures, *A Context for Change Management in the Capital Regional District; Future Population, Labour Force, Employment and Housing in the Capital Regional District*. August 2009

4.2 Existing Travel Patterns

In 2006 the CRD undertook an extensive household travel survey ('2006 CRD Origin Destination Household Travel Survey' or 'OD Survey') to identify detailed travel characteristics of local residents. The survey was purposefully conducted in 2006 to coincide with the Statistics Canada Census. The Census 'Journey to Work' data and the OD Survey results provide useful information in assessing the travel patterns of residents in the CRD.

Key findings of the OD Survey include:

1. 1.24 million daily weekday trips within the CRD
2. Nearly 800,000 (64.5%) of daily weekday trips start and end within the Urban Core
3. The number of trips between the West Shore and the Urban Core is almost 50% greater than trips between the Saanich Peninsula and the Urban Core
4. 163,500 trips are made internal to the West Shore
5. Roughly 55,000 trips made daily from the West Shore to the Urban Core. Of those 55,000 trips, the #1 destination is Saanich at 41%, and the #2 destination is Victoria at 33%



Breakdown of West Shore Trips to Urban Core		
Victoria	18,800	33%
Saanich	22,800	41%
Esquimalt	6,100	11%
View Royal	5,200	10%
Oak Bay	2,500	5%
Total	**55,400**	**100%**

Figure 4.3 - 2006 Origin / Destination by Sub-Region

4.2.1 Daily Trips – Corridor Flows

Daily Weekday trips are calculated based on origin destination (OD) data. The OD data was used to logically route trips through municipalities to form a complete route between the origin point and the trip destination. In order to establish the aggregate corridor flows, it was necessary to determine the path of travel for each combination of origin/destination pairs. For example, a trip beginning in Sidney and ending in View Royal would logically travel between the links from Sidney to North Saanich, Central Saanich, Saanich, and View Royal. However, because some origin/destination combinations have more than one probable path of travel, some estimation regarding the path of travel was necessary. For example, a trip beginning in View Royal and ending in Victoria could reasonably take a northern route through Saanich, or could take a southern route through Esquimalt. As such, a percentage split was estimated such that a portion of the traffic was routed through each reasonable travel alternative. Where available, external data such as traffic count stations were used to estimate the percentage split between alternative route choices. Trips were then aggregated to estimate the total "corridor" traffic flow within and between municipalities. This provided an estimation of which broad travel corridors have the highest and lowest trip demand.

Figure 4.4 presents the corridor flows for the CRD.

Key findings of the OD Survey related to major corridor travel flows within and between municipalities include:

1. The highest demand for inter-municipal trips is between Saanich and Victoria at 212,000 trips

2. Victoria and Saanich each have about 200,000 internal trips taken each day

3. East of the of the interchange between the Trans Canada Highway (Highway 1) and the Old Island Highway, approximately 80% of the trips take Highway 1 through Saanich while the remaining 20% of trips take the Island Highway through Esquimalt

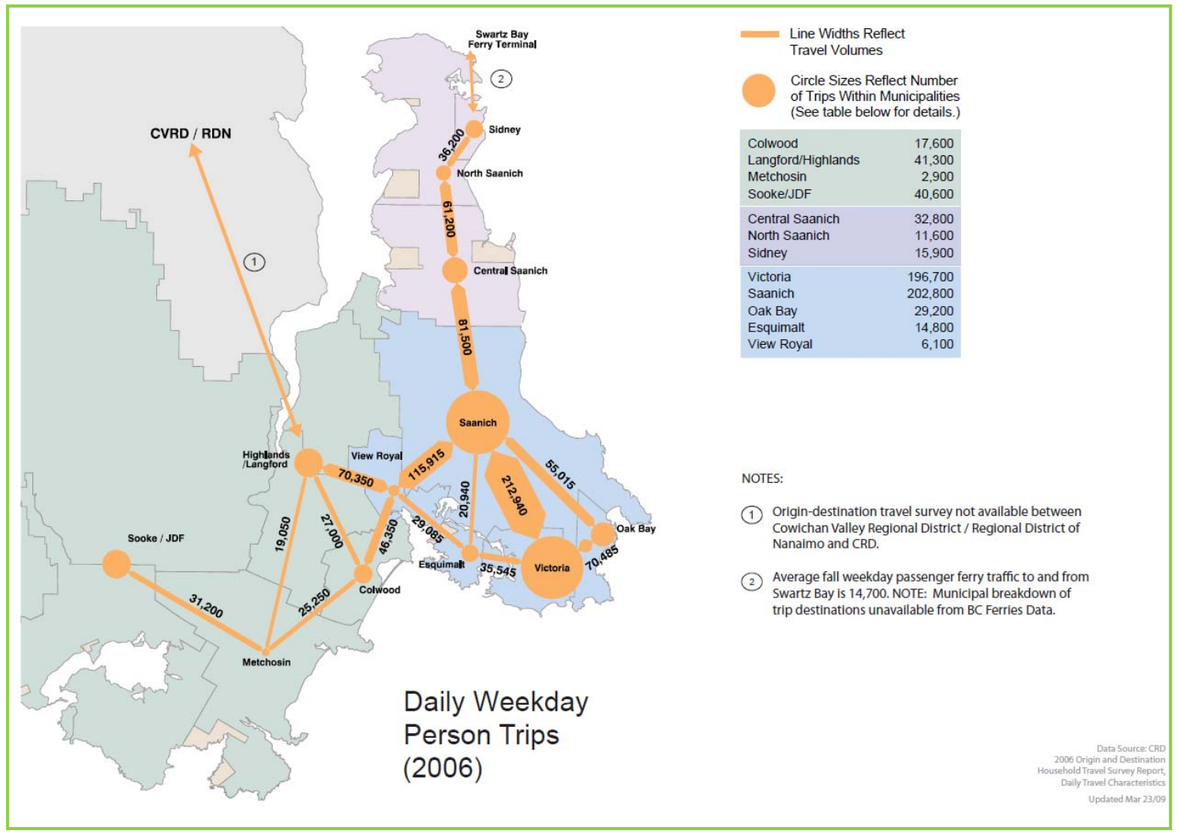


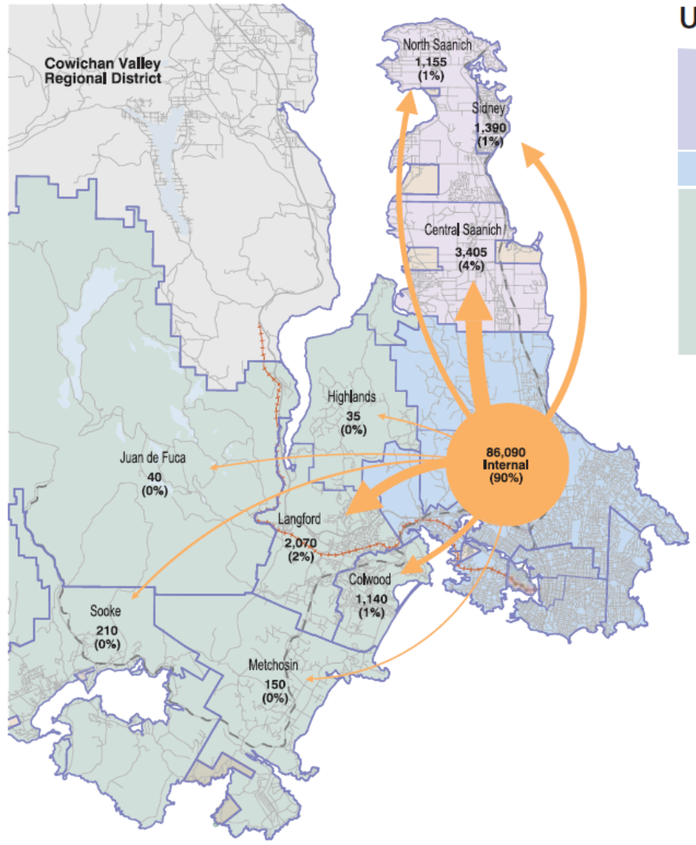
Figure 4.4 - Corridor Trip Volumes - Daily Weekday Trips

4.2.2 Urban Core – Daily Work Trips

Key findings of the 2006 Statistics Canada Journey to Work data related to the urban core include:

1. 90% of Urban Core residents work within the sub-region
2. From 2001 to 2006 the number of workers commuting from the Urban Core to the Saanich Peninsula increased by 35%
3. From 2001 to 2006 the number of workers commuting from the Urban Core to the West Shore increased by 90%
4. Overall, the number of people living and working in Urban Core is rising, but an increasing percentage of people living in the Urban Core are now commuting to the Saanich Peninsula and the West Shore for work

Figure 4.5 represents the number of daily work trips originating in the Urban Core.



Urban Core

	2001		2006		Change 2001 to 2006	
North Saanich	1,040	1%	1,155	1%	115	11%
Central Saanich	2,335	3%	3,405	4%	1,070	46%
Sidney	1,040	1%	1,390	1%	350	34%
Saanich Peninsula	**4,415**	**5%**	**5,950**	**6%**	1,535	35%
Urban Core	**77,995**	**93%**	**86,090**	**90%**	**8,095**	**10%**
Highlands	-	-	35	-	35	-
Langford	1,180	1%	2,070	2%	890	75%
Colwood	535	1%	1,140	1%	605	113%
Metchosin	125	-	150	-	25	20%
Sooke	60	-	210	-	150	250%
Juan de Fuca	-	-	40	-	40	-
West Shore	**1,900**	**2%**	**3,645**	**4%**	1,745	92%
Total	**84,310**		**95,685**		**11,375**	**13%**

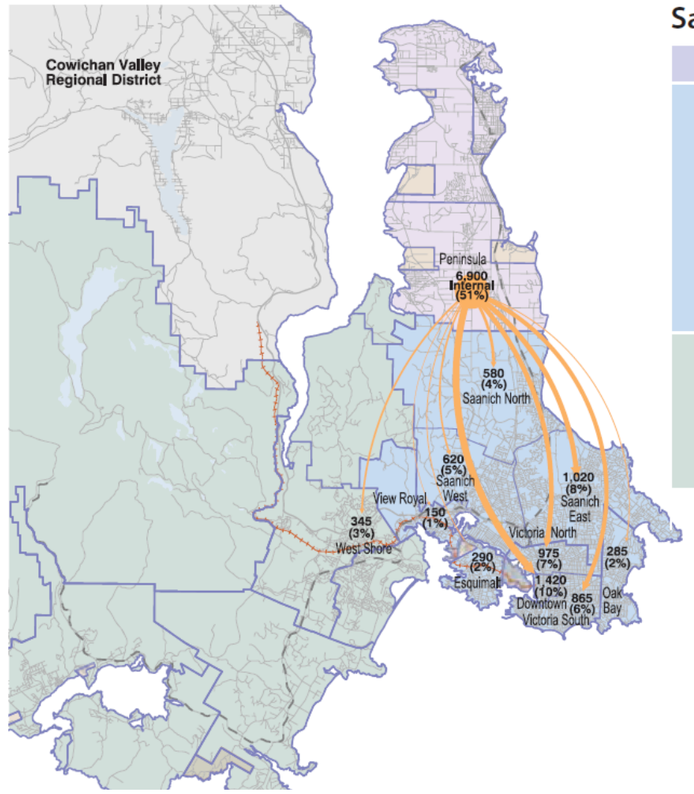
Figure 4.5 - Urban Core – Daily Work Trips

4.2.3 Saanich Peninsula – Daily Work Trips

Key findings of the 2006 Statistics Canada Journey to Work data related to the Saanich Peninsula include:

1. The percentage of workers living and working in the Saanich Peninsula has remained relatively constant
2. The percentage of workers commuting from the Saanich Peninsula to the Urban Core has remained relatively constant
3. Of the workers commuting from the Saanich Peninsula to the Urban Core, fewer are going downtown while more are going to Victoria North, Saanich West, Saanich North, and Oak Bay

Figure 4.6 represents the number if daily work trips originating in the Saanich Peninsula.



Saanich Peninsula	2001		2006		Change 2001 to 2006	
Saanich Peninsula	**6,405**	**52%**	**6,900**	**51%**	**495**	**8%**
Downtown	1,645	13%	1,420	10%	-400	-24%
Victoria South	1,035	8%	865	6%	-170	-16%
Victoria North	870	7%	975	7%	105	12%
Saanich West	435	4%	620	5%	185	43%
Saanich East	1,060	9%	1,020	8%	-40	-4%
Saanich North	420	3%	580	4%	160	38%
Oak Bay	**160**	**1%**	**285**	**2%**	**125**	**78%**
Esquimalt	305	2%	290	2%	-15	-5%
View Royal	150	1%	240	2%	90	60%
Urban Core	**6,080**	**49%**	**6,295**	**46%**	**215**	**4%**
Highlands	-	-	-	-	-	-
Langford	65	1%	245	2%	180	277%
Colwood	65	1%	70	1%	5	8%
Metchosin	-	-	20	-	20	-
Sooke	-	-	10	-	10	-
West Shore	**130**	**1%**	**345**	**3%**	**215**	**165%**
Total	**12,615**		**13,540**		**925**	**7%**

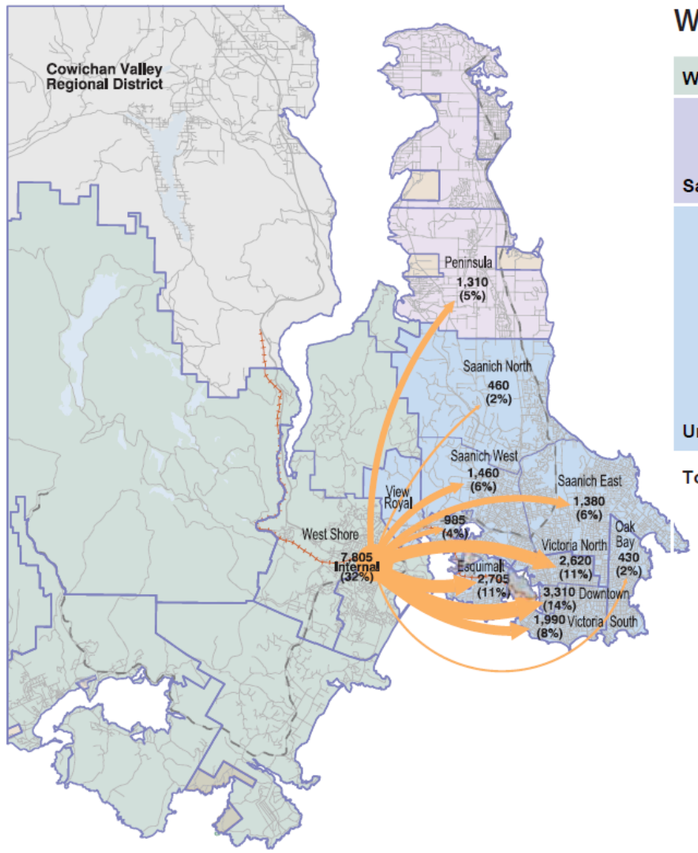
Figure 4.6 - Saanich Peninsula - Daily Trips

4.2.4 West Shore – Daily Work Trips

Key findings of the 2006 Statistics Canada Journey to Work data related to the West Shore include:

1. There has been a 50% increase in the number of West Shore workers staying within the West Shore to work
2. Almost one-third of West Shore workers work within the sub-region
3. The number of daily trips from the West Shore to the Core increased to over 15,000 daily trips, an increase of greater than 2,000 daily trips, a 17% increase.
4. Of the workers commuting from the West Shore to the Urban Core, fewer are going downtown or to Victoria South.

Figure 4.7 represents the number of daily work trips originating in the West Shore.



West Shore	2001		2006		Change 2001 to 2006	
West Shore	**5,040**	**27%**	**7,805**	**32%**	**2,765**	**55%**
Central Saanich	505	3%	810	3%	305	60%
North Saanich	165	1%	225	1%	60	36%
Sidney	130	1%	275	1%	145	112%
Saanich Peninsula	**800**	**4%**	**1,310**	**5%**	**510**	**64%**
Downtown	3,050	16%	3,310	14%	260	9%
Victoria South	1,860	10%	1,990	8%	130	7%
Victoria North	2,165	11%	2,620	11%	455	21%
Saanich West	1,150	6%	1,460	6%	310	27%
Saanich East	1,415	7%	1,380	6%	-35	-2%
Saanich North	310	2%	460	2%	150	48%
Oak Bay	175	1%	430	2%	255	146%
Esquimalt	2,040	11%	2,705	11%	665	33%
View Royal	945	5%	985	4%	40	4%
Urban Core	**13,110**	**69%**	**15,340**	**63%**	**2,230**	**17%**
Total	**18,950**		**24,455**		**5,505**	**23%**

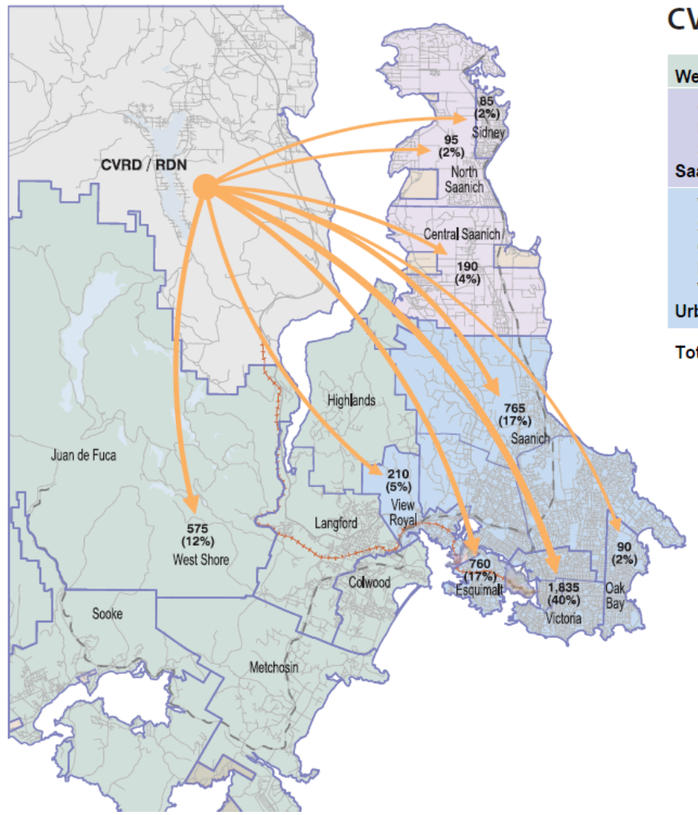
Figure 4.7 - West Shore – Daily Trips

4.2.5 Outside CRD ("long distance") – Daily Work Trips

Key findings of the 2006 Statistics Canada Journey to Work data related to long distance trips include:

1. There is a stable growth in "long distance" work commuters coming into the CRD
2. About 80% of long distance commuters are destined to the Urban Core
   a. Within the Urban Core, Esquimalt has seen most notable increase from 2001 to 2006
3. The percentage of long distance commuters travelling to the West Shore and the Saanich Peninsula is increasing, while the percentage travelling to the Urban Core is decreasing

Figure 4.8 represents the number of work trips originating outside the CRD.



CVRD/RDN	2001 CVRD	2001 RDN	2001 Total	2001 %	2006 CVRD	2006 RDN	2006 Total	2006 %	Total Change 2001 to 2006	
West Shore	**340**	**35**	**375**	**10%**	**480**	**95**	**575**	**12%**	**200**	**53%**
Central Saanich	90	-	90	2%	175	15	190	4%	100	111%
North Saanich	55	15	70	2%	50	45	95	2%	25	36%
Sidney	65	60	125	3%	65	20	85	2%	-40	-32%
Saanich Peninsula	**210**	**75**	**285**	**8%**	**290**	**80**	**370**	**8%**	**85**	**30%**
Victoria	1,460	195	1,655	44%	1,655	180	1,835	40%	180	11%
Saanich	605	55	660	18%	690	75	765	17%	105	16%
Oak Bay	35	10	45	1%	75	15	90	2%	45	100%
Esquimalt	415	25	440	12%	735	25	760	17%	320	73%
View Royal	290	10	300	8%	210	-	210	5%	-90	-30%
Urban Core	**2,805**	**295**	**3,100**	**82%**	**3,365**	**295**	**3,660**	**79%**	**560**	**18%**
Total	**3,355**	**405**	**3,760**		**4,135**	**470**	**4,605**		**845**	**22%**

Figure 4.8 - Long Distance Trips

4.2.6 Trip Purpose by Time of Day

By integrating the region wide trip purpose data from the OD Survey with a representative 24 hour traffic count histogram, a forecast for the individual component trip types making up the traffic at various times of the day was developed. Examining the resulting trip histogram in Figure 4.9 reveals the following key points:

1. Personal/other trips make up almost half of all trips
2. Over 50% of total trips are made during off-peak hours

Despite the commonly held perception that work commuters make up the vast majority of rush hour trips, they are only about 1/3 of the trips made during the AM and PM peak hours.

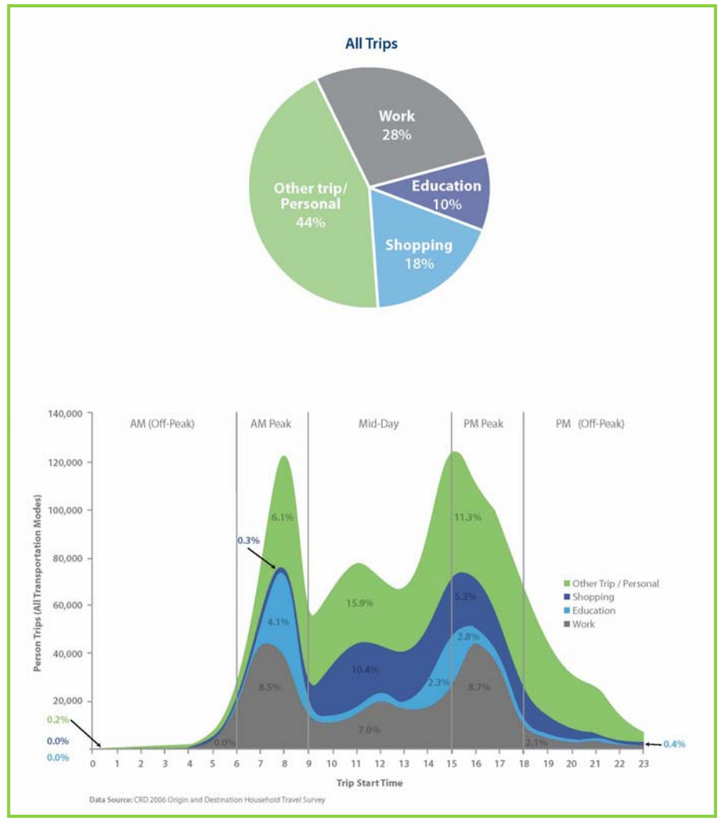


Figure 4.9 - 2006 Weekday Trip Purpose by Time of Day

4.3 Travel Mode

Travel mode refers to the type or mode of transportation used to make a trip or journey. Travel modes include:

1. Transit – using a transit service (bus, train, streetcar, etc.)
2. Automobile
3. Active (walking, cycling)
4. Other (types not covered by the above categories)

The key findings of the OD survey relating to travel mode include:

- Overall weekday Transit mode share is 6.4% and has remained fairly constant since 2001
- Almost 80% of trips are taken by automobile
- Transit mode share in the Urban Core remains fairly stable through mid-day
- Transit Mode Share in the Saanich Peninsula and the West Shore drops off substantially during mid-day (“commuter oriented”)

4.3.1 Mode Share

The OD Survey found that private vehicles were the dominant travel mode in the region, accounting for 79% of weekday travel and 85% of travel on Saturdays. Auto drivers accounted for 60% while auto passengers were a further 19%. Active transportation (walking and cycling) accounted for 13% of weekday travel, with walking capturing 10% and cycling accounting for the remaining 3%. Transit accounted for 6.4% of weekday trips, or about 79,000 trips.

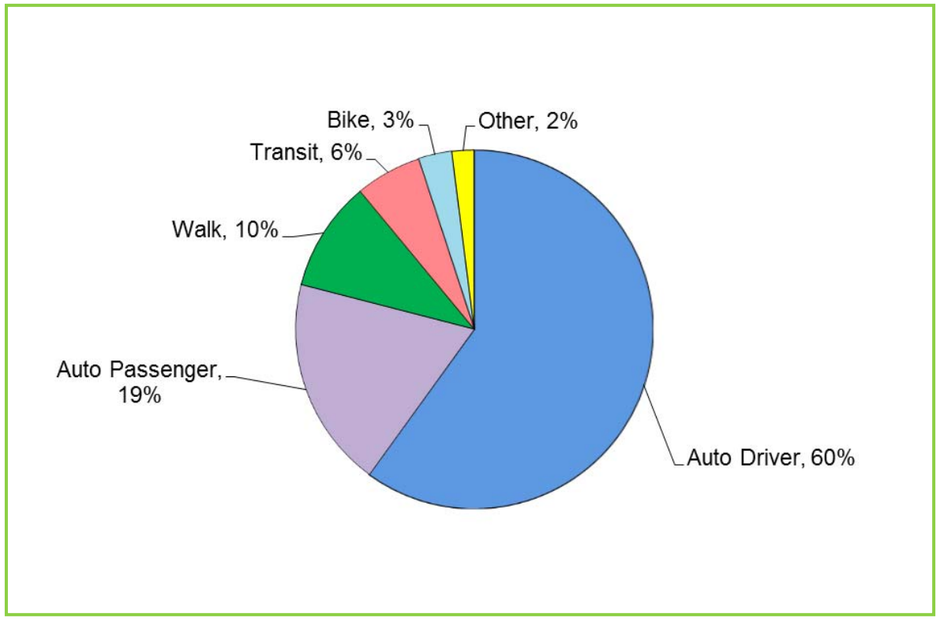


Figure 4.10 - CRD Transportation Mode Share (2006)

Transit mode share varies significantly by time period and by travel flow:

- Transit use was significantly lower on Saturdays, with a 3.8% mode share
- Transit mode share varies significantly by time of day. It is highest during the morning peak (9%) and afternoon peak (7%), while it is lowest in the evening (3%)
- Transit mode share is 6.4% overall, but it is 7.9% for travel within the Core. Transit mode share is 8.3% for travel between the West Shore and the Core, while it is 5.4% for travel between the Peninsula and the Core. Transit mode share is much lower for travel within the West Shore at 1.6% and for travel within the Peninsula at 0.9%
- Transit mode share is highest for trips going to downtown Victoria at 13.4% followed by Oak Bay (which includes U-Vic) at 11.4%.

4.3.2 Transit Trip Patterns

Transit trips show a significantly different geographic pattern than the pattern seen for all travel modes.

- 80% of all transit trips in the region were within the Core area, but there was relatively little transit travel within the West Shore (3%) or the Peninsula (1%)
- 16% of travel was between sub-regions, with nearly 11% between the West Shore and the Core and 5% between the Peninsula and the Core. Travel between the West Shore and the Saanich Peninsula accounted for <1%
- When all travel modes are observed, there is more travel within the West Shore and within the Peninsula than there is between each sub-region and the Core. This differs from the transit patterns, where there is four times as much transit travel between each sub-region and the Core than there is transit travel within the sub-region. In part, this reflects existing transit service levels within each sub-region
- 18% of transit trips are destined to downtown Victoria and nearly three quarters (72%) of transit trips are destined to the City of Victoria, Saanich East, or Oak Bay

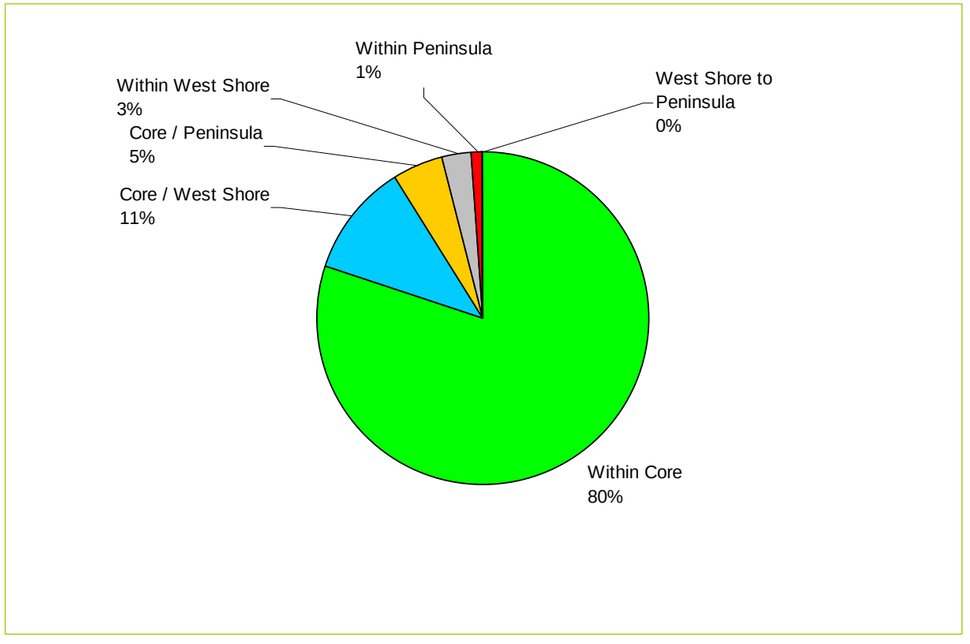


Figure 4.11 - Transit Trip Patterns (2006)

4.3.3 Work Trips – Transit Mode Share and Trip Patterns

The overall transit mode share for work trips was 10.2%. If work trips with no usual place of work are excluded, then the transit mode share is 10.9%.

- The transit mode share was highest for work trips within the Core at 12.8%
    - Interestingly, the transit mode share for work trips within the City of Victoria is lower at 10.7%. In large part, this is because active transportation accounts for nearly half (48%) of these shorter commutes within the City of Victoria versus 23% for all commutes within the Core
- The second highest transit mode share for work trips was between the Peninsula and the Core (10.2% for trips to the Core and 11.8% for trips to the Peninsula)
- Transit mode share for work trips between the West Shore and the Core was 9.5% for trips to the Core and 7.8% for trips to the West Shore
- The transit mode share for work trips coming to the Core is similar for both the West Shore and the Peninsula. For work trips coming from the Core, however, there is a much higher transit mode share for trips destined to the Peninsula than for trips to the West Shore. This may be due to more dispersed employment locations in the West Shore that are more difficult to access by transit.
- Transit mode share was very low for work trips within the West Shore (3%), within the Peninsula (2.5%) and between the West Shore and the Peninsula (1.5%).
- Transit mode share was highest for work trips destined to downtown Victoria (20.8%). Transit mode share was also relatively high for work trips going to Victoria North (11.9%) and to Oak Bay (11.6%)

Transit work trips show a somewhat different pattern from all travel mode work trips:

- More than three quarters (76%) of transit work trips are within the Core, and 40% of transit work trips are destined to downtown Victoria. This is due in part to the nature of the existing transit service
- A further 12% of transit work trips are between the West Shore and the Core, with the large majority of these (10%) coming from the West Shore to the Core
- Just over 9% of transit work trips are between the Peninsula and the Core, with slightly more than half of the trips originating in the Core
- Less than 3% of transit work trips were within the West Shore or within the Peninsula

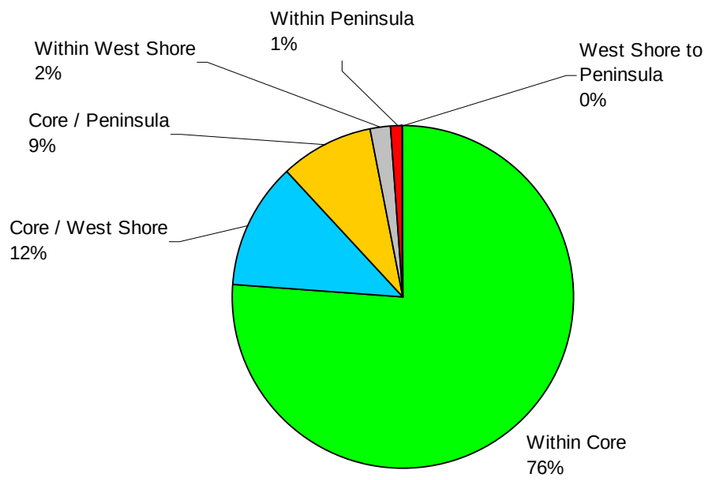


Figure 4.12 - Work Trip Transit Travel Patterns (2006)

5.1 Annual Service Hours

The amount of service provided by the Victoria Regional Transit System doubled from 356,000 service hours in 1985/86 to 723,000 service hours in 2008/09. Service hours are defined by CUTA[4] as the number of hours a vehicle is providing regular passenger revenue service including scheduled and non-scheduled service. Service hours do not include layover time, deadheading, training, road tests, maintenance or auxiliary services (e.g. charters, school contracts, etc.). Figure 5.1 illustrates the trend in service hours and service hours per capita over the period 1985/86 to 2008/09

There was a slight decrease in service hours during the mid-1980s, followed by fairly steady growth in service during the 1990s. Service hours again showed a slight decrease between 2000/01 and 2003/04, but have since been steadily increasing once again.

Service growth has far outpaced population growth over this period (+33%), so there has also been an increase in per capita service hours. These have increased from a low of 1.30 hours per capita in 1988/89 to 2.07 hours per capita in 2008/09, an increase of nearly 60% over the past 20 years.

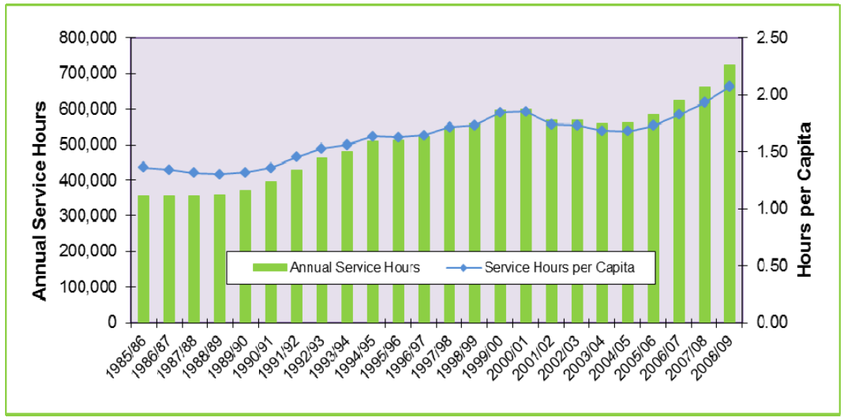


Figure 5.1 - Annual Service Hours and Hours per Capita

5.2 Ridership

Annual ridership on the Victoria Regional Transit System has nearly doubled over the past 25 years, rising from 13 million in 1985/86 to nearly 24 million in 2008/09. Figure 5.2 illustrates the trend in ridership and rides per hour over the period 1985/86 to 2008/09.

While service hours have fluctuated somewhat over this period, as described above, ridership has risen more steadily. That is, even during periods when service levels have been flat or declining, ridership has usually continued to increase.

Rides per hour of service is the annual passengers divided by annual total service hours, a measure of the productivity of a transit route or service, reached a peak of 40.7 in 1987/88, and then gradually declined to 29.5 by 1999/00. Rides per service hour then started to increase, reaching 36.0 by 2005/06, followed by a decline over the past three years to 32.2 in 2008/09.

Generally, rides per service hour decline during periods of growth in service hours as ridership growth typically lags growth in service hours. Generally it takes 1-2 years for ridership to respond to increases in service. Conversely, rides per hour have tended to increase during periods of flat or declining service levels as service tends to be more focused on the most productive markets.

- The faster growth in service hours in the West Shore and the Saanich Peninsula has also played a role in the reduction of rides per hour, since these services tend to achieve lower riders per service hour than some of the Core area routes given their more dispersed and population.

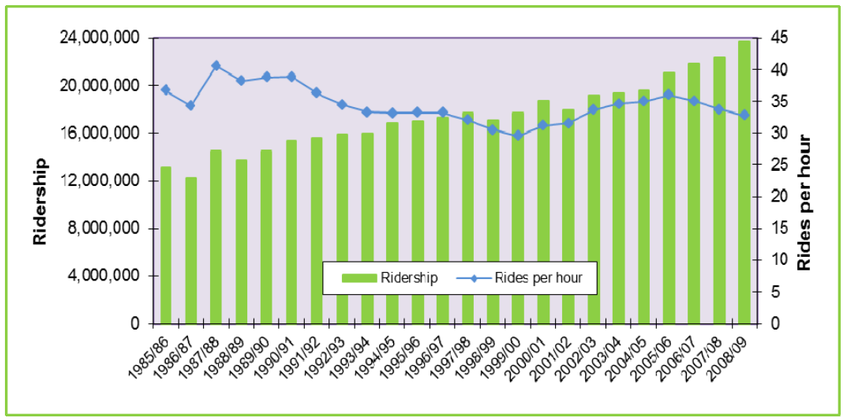


Figure 5.2 - Annual Ridership and Rides per Hour

[4] Canadian Urban Transit Association

5.3 Fleet Size

The fleet size has grown from 109 vehicles in 1985/86 to 272 in 2008/09. Not surprisingly, growth in the fleet has roughly followed the same pattern as growth in service hours over the past 25 years. The 2008/09 fleet includes 243 conventional buses and 29 community buses.

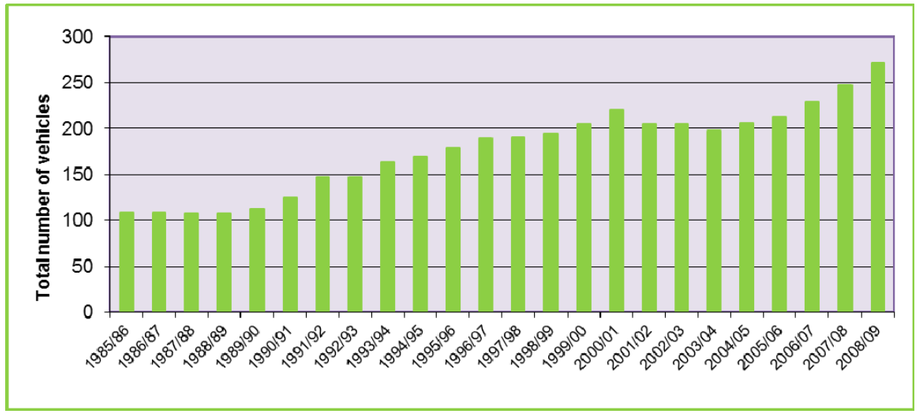


Figure 5.3 - Conventional and Community Bus Fleet Size

5.4 Service Frequency

Service frequency is a key measure of transit service quality. Since it greatly affects the speed and convenience of using transit, it is a very important service attribute for passengers, and it is often the service attribute that passengers most want to see improved. Service frequency is typically measured by the amount of time between trips, known as headway. Table 5.1 shows the average weekday headway by route and time period. The routes have been ranked by most frequent headway during the AM peak period.

Table 5.1 - Weekday Service Headways

Route #	AM Peak 6:00 – 9:00	Midday 9:00 – 15:00	PM Peak 15:00 – 18:00	Early evening 18:00 – 21:00	Late evening 21:00 – 24:00
<10 minute headway					
14 U-Vic/VGH	7	6	6	14	20
6 Esquimalt/Royal Oak	7	9	8	16	24
27/28 Gordon Head/Downtown	7	10	7	13	15
10-14 minute headway					
50 Langford/Downtown	10	12	10	15	24
30/31 James Bay/Royal Oak	11	10	9	13	23
11 Tillicum Mall/U-Vic	11	17	12	20	26
70/71/72/73 Swartz Bay	11	14	13	26	28
4 U-Vic/Downtown	12	10	10	14	20
26 Dockyard/U-Vic	13	12	11	28	36
15-29 minute headway					
35 Ridge	15	26	18	--	--
2 Oak Bay/Downtown	16	15	15	21	30
7 U-Vic/Downtown	18	15	16	20	30
21 Interurban/Downtown	18	21	17	30	135
59 Triangle Mountain	18	30	15	90	--
75 Saanichton/Downtown	19	29	22	45	75
22 VGH/Hillside Mall	20	29	26	36	45
61 Sooke/Downtown	21	56	21	53	53
39 Royal Roads/U-Vic	23	29	31	75	180
56 Spencer	23	20	18	23	90
58 Langford Meadows	23	23	23	45	45
77 North Saanich	23	90	30	--	--
3 Gonzales/Beacon Hill	26	20	20	45	--
52 Wishart	28	31	22	60	75
30-59 minute headway					
54 Metchosin	30	60	30	90	--
66 East Sooke	30	60	45	90	--
24 Cedar Hill/Admirals Walk	33	43	41	75	180
1 Richardson/Downtown	39	52	46	0	--
25 Maplewood/Admirals Walk	41	46	41	60	180
8 Interurban/Oak Bay	45	34	33	120	180
57 Millstream	45	20	18	0	--
55 Happy Valley	45	60	45	0	--
82 Sidney/Keating	45	150	68	135	135
32 Royal Oak/Cordova Bay	53	60	53	90	90
12 University Heights/U-Vic	53	40	53	0	--
>60 minute headway					
53 Atkins	68	60	48	90	--
83 Sidney/Royal Oak	75	150	75	90	180
81 Swartz Bay/Brentwood	90	96	135	90	--
63 Otter Point	90	90	90	0	--
13 Cadboro Bay/U-Vic	0	120	90	0	--

Figure 5.4 below shows the three routes with peak period frequency of less than 10 minutes. Figure 5.5 shows the nine routes with peak period frequency of less than 15 minutes.

Routes with <10 minute headway:

14 U-Vic/VGH

6 Esquimalt/Royal Oak

27/28 Gordon Head/Downtown

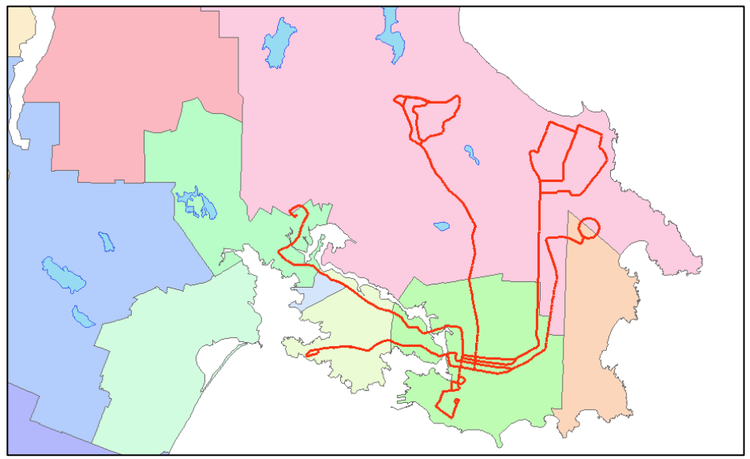


Figure 5.4 - Transit Routes with <10 Minute Frequency

Routes with <15 min. headway:

14 U-Vic/VGH

6 Esquimalt/Royal Oak

27/28 Gordon Head/Downtown

30/31 James Bay/Royal Oak

26 Dockyard/U-Vic

11 Tillicum Mall/U-Vic

4 U-Vic/Downtown

50 Langford/Downtown

70/7X Swartz Bay/Downtown

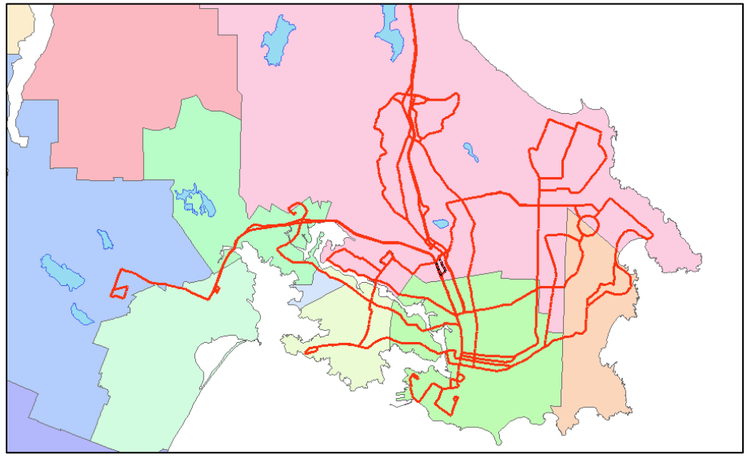


Figure 5.5 - Transit Routes with <15 Minute Frequency

Figures 5.6 and 5.7 show combined frequency, as so referred to as combined headway, on corridors throughout the Victoria region for the AM peak period (inbound) and the PM peak period (outbound). Combined frequency is the frequency on corridors where more than one route operate. For example, if two individual routes with a 20 minute frequency operate for a portion of the trip on the same corridor, the combined frequency on that shared corridor will be 10 minutes.

The combined headway on Douglas St between Belleville St and Hillside Ave is two minutes or less in the southbound direction during the AM peak period and in the northbound direction during the PM peak period. The combined headway is also two minutes or less on parts of Ring Rd on the University of Victoria campus in the PM peak period.

During the AM peak period, the combined headway is between two and five minutes:

- Southbound on Douglas St between Saanich Rd and Hillside St
- Westbound on Pandora Ave and Yates St
- Southbound on Quadra St and Shelbourne St
- Southbound on Esquimalt Road west of Lampson St

During the PM peak period, the combined headway is between two and five minutes:

- Northbound on Douglas St between Hillside Ave and Saanich Rd
- Eastbound on Fort St
- Northbound on Richmond Ave
- Northbound on Esquimalt Rd west of Lampson St

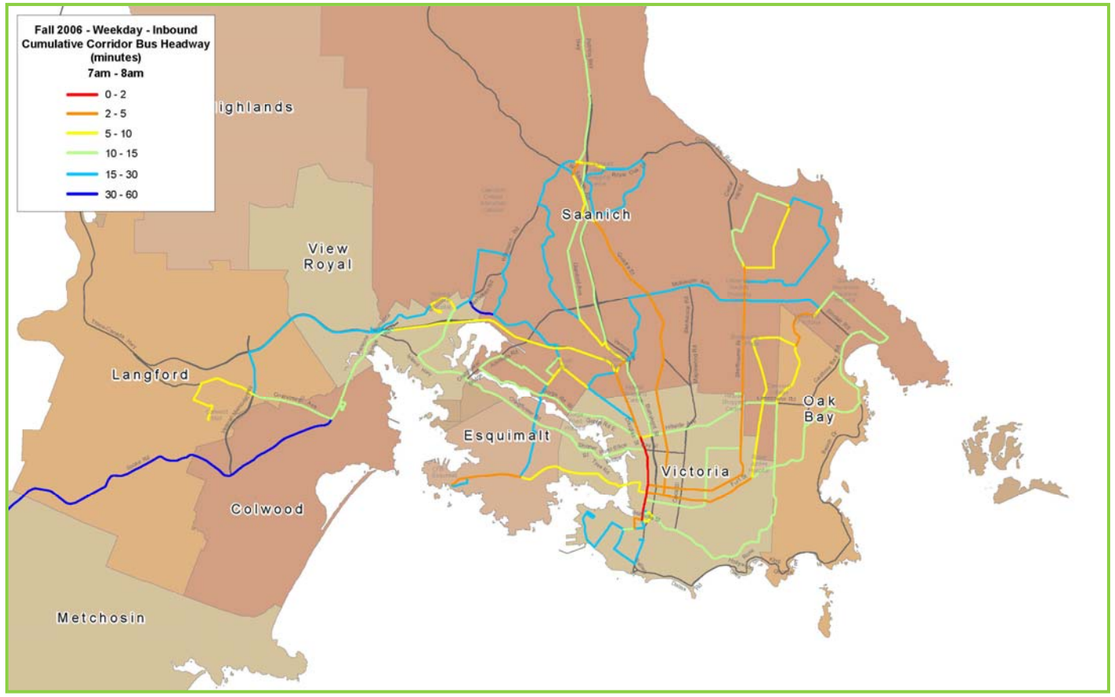


Figure 5.6 - Service Frequency by Corridor (AM Peak Period, Inbound)

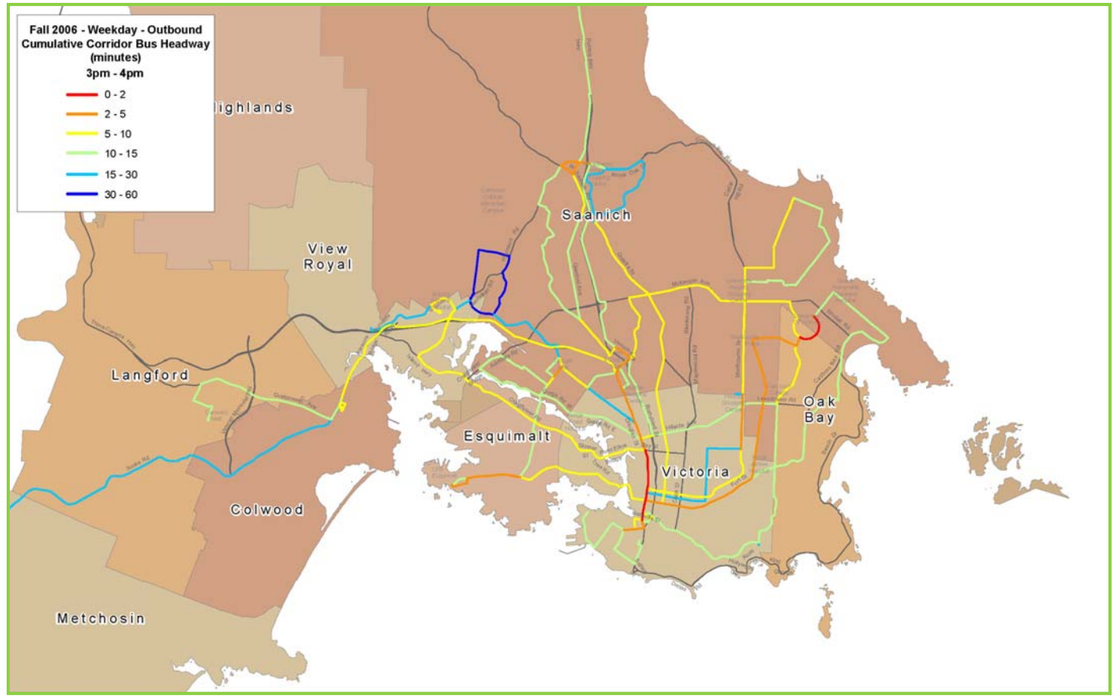


Figure 5.7 - Service Frequency by Corridor (PM Peak Period, Outbound)

5.5 Ridership and Service by Time Period and Route

This section examines the service levels and ridership of the Victoria Regional Transit System by time period and route. Productivity (rides per hour of service) is also examined. The ridership data is based on boardings, and uses Automated Passenger Count (APC) data from the fall 2008.

5.5.1 Ridership and Service by Time Period

On weekdays, the overall Victoria regional transit system averages 96,000 boardings based on 2,446 service hours. This yields a system wide average of 39 boardings per service hour (productivity).

On Saturdays, the system averages 55,000 boardings based on 1,437 service hours. Ridership is 57% of the weekday level and service is 59% of the weekday level, resulting in a similar system wide average productivity of 38 boardings per service hour.

On Sundays, the system averages 41,000 boardings based on 1,127 service hours. Ridership is 43% of weekday level while the service is 46% of the weekday level, resulting in a system wide average productivity of 37 boardings per service hour.

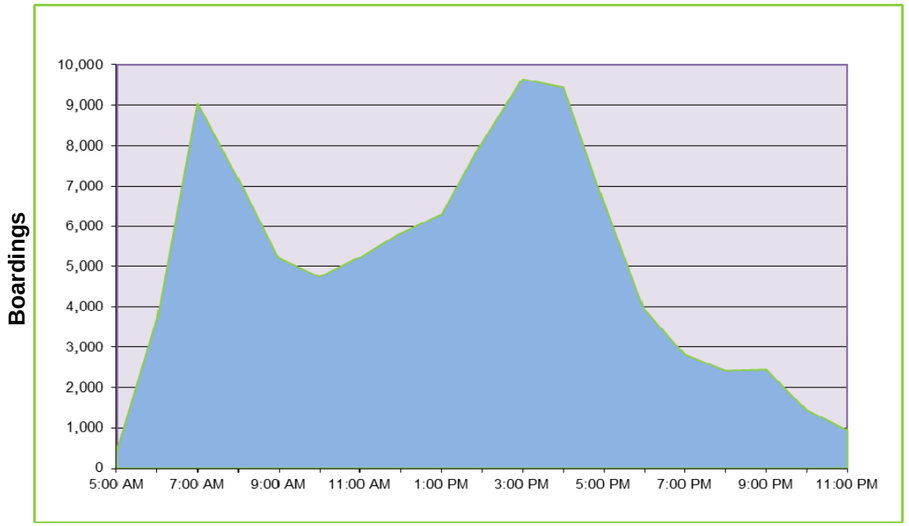


Figure 5.8 - Average Hourly Boardings, Fall 2008

The ridership profile presented in Figure 5.8 is typical of most transit systems, with a sharp peak during the AM peak period, and a higher, broader peak during the PM peak period.

- In the morning, boardings peak at 9,000 during 7 am – 8 am, mostly due to work, school, and post-secondary trips. The entire AM peak period (5 am – 9 am) accounts for 21% of total weekday boardings.
- During the afternoon, boardings peak at 9,700 during 3 pm – 4 pm and 9,500 during 4 pm – 5 pm. The PM peak period tends to be higher and broader than the AM peak since it includes a wider range of trip types. While the AM peak period is dominated by commuter trips, the PM peak period also includes many non-commuter trips. The entire PM peak period (3 pm – 6 pm) accounts for 27% of total weekday boardings.
- During the midday period (9 am – 3 pm) hourly boardings mostly range between 5,000 and 6,000. However, hourly boardings reach 8,000 during 2 pm – 3 pm. Overall, the midday period accounts for 37% of total weekday boardings.
- Evening boardings are highest during 6 pm – 7 pm at about 4,000. Boardings drop to about 2,500 for each hour between 7 pm and 10 pm. After 10 pm, there is a further drop in hourly boardings. The evening period accounts for about 15% of total weekday boardings.

5.5.2 Ridership and Service by Sub-Region

Urban Core routes account for 69% of total service hours (1,693 service hours) and 81% of total boardings (78,000). The Core routes average 46 boardings per service hour.

West Shore routes account for 16% of total service hours (388 service hours) and 12% of total boardings (11,000). The West Shore routes average 29 boardings per service hour.

Saanich Peninsula routes account for 15% of total service hours (365 service hours) and 7% of total boardings (6,600). The Saanich Peninsula routes average 18 boardings per service hour.

The lower productivity on the suburban routes, particularly the Saanich Peninsula routes, is in part due to the longer length of these routes, which require more service hours to provide a similar level of service to other routes. While boardings per service hour on the Saanich Peninsula routes averages less than 40% of the urban routes, boardings per trip is about 60% of the urban route level.

5.5.3 Ridership and Service by Route

The 14-UVic/Vic General and 6-Esquimalt/Quadra are the two top routes in the Victoria Regional Transit system in terms of weekday passenger boardings. Each has over 11,000 passenger boardings. These two routes combined, which account for 18% of service hours, have nearly one-quarter (24%) of weekday boardings.

The top five routes are 14-UVic/Vic General, 6-Esquimalt/Quadra, 27-Gordon Head/28-Majestic, 26-UVic/Dockyard, and 30-Beacon Hill/31-James Bay. These routes account for just over one-third (37%) of service hours, but nearly half (48%) of total weekday boardings. All of these routes are urban routes serving the Core area.

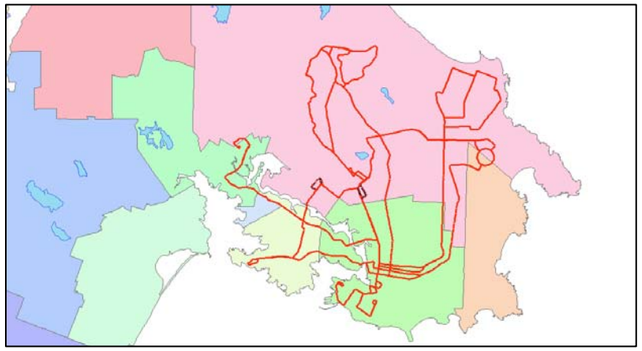


Figure 5.9 - Top 5 Routes by Ridership

The top ten routes account for nearly two thirds (65%) of service hours and more than three quarters (77%) of weekday boardings. The top ten includes two suburban routes: 50-Langford and 70/7X-Swartz Bay.

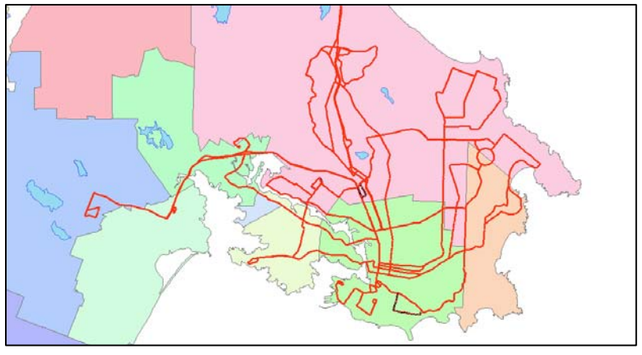


Figure 5.10 - Top 10 Routes by Ridership

Figure 5.11 shows the top 20 routes, ranked by average weekday boardings. These routes account for 95% of total system weekday boardings. The other 25 routes (not shown) account for the remaining 5% of daily weekday boardings.

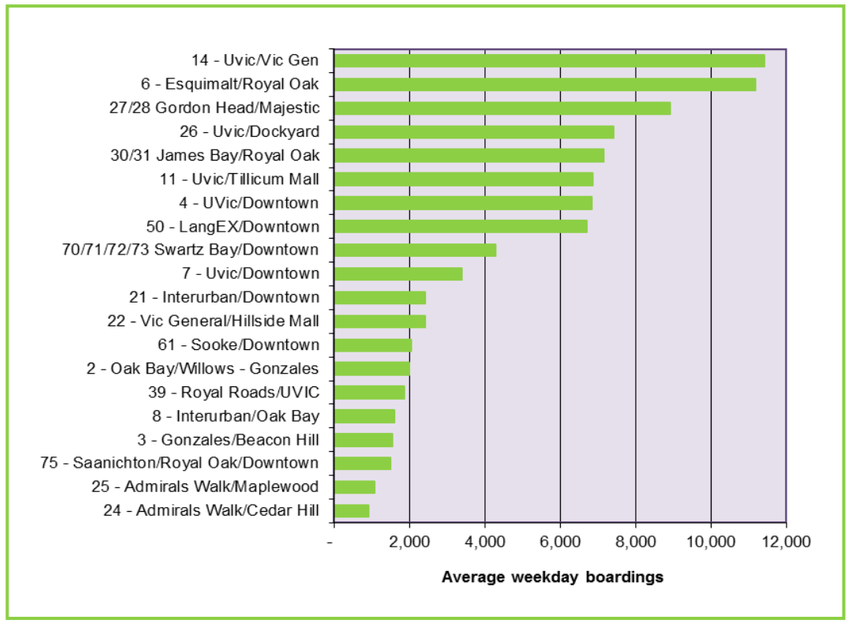


Figure 5.11 - Average Weekday Boardings by Route

Figure 5.12 shows the top 20 routes ranked by weekday productivity:

- The 26-UVic/Dockyard and the 4-UVic/Downtown have the highest productivity among all the routes, with both exceeding 60 boardings per service hour.
- Twelve routes exceed the system average productivity of 39 boardings per service hour.
- Generally, the highest productivity routes are also high ridership routes. Of the five routes with the highest productivity, four of them are among the top five routes by boardings and all are among the top seven routes by boardings.
- Nine of the ten most productive routes are urban routes.
- Seven of the ten most productive routes, including the top three most productive routes, provide service to UVic.

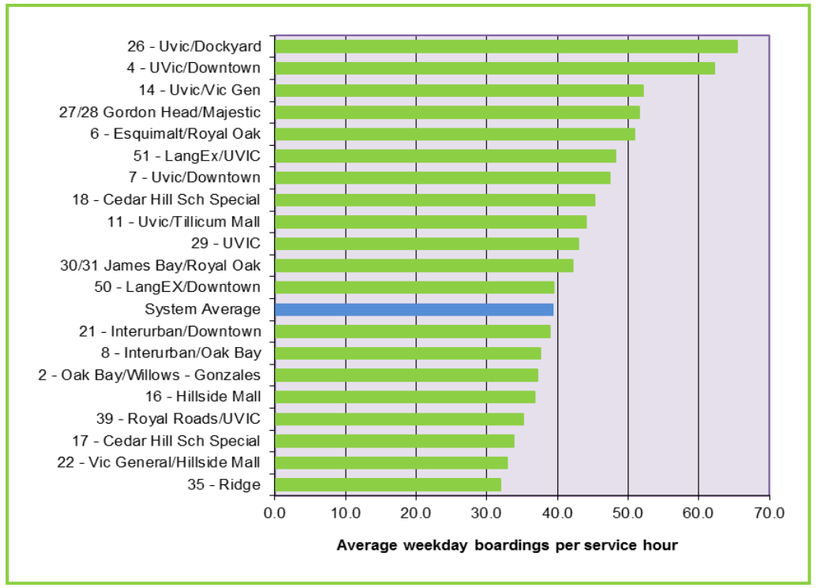


Figure 5.12 - Average Weekday Productivity by Route

5.5.4 Ridership by Corridor

Figure 5.13 shows total 24-hour weekday transit passenger volumes by corridor. Douglas Street downtown has the highest volume (17,000 to 23,000), followed by Douglas Street to Uptown and downtown Victoria to U-Vic -#14 route (6,000 to 10,000). Several Core area corridors, including parts of Quadra, Shelbourne, Hillside, McKenzie, and Esquimalt Road also have relatively high volumes (4,000 to 6,000). The Highway 1 corridor as far as the Western Exchange is the only corridor outside the Core area that reaches this level of passenger volume (4,000 to 6,000).

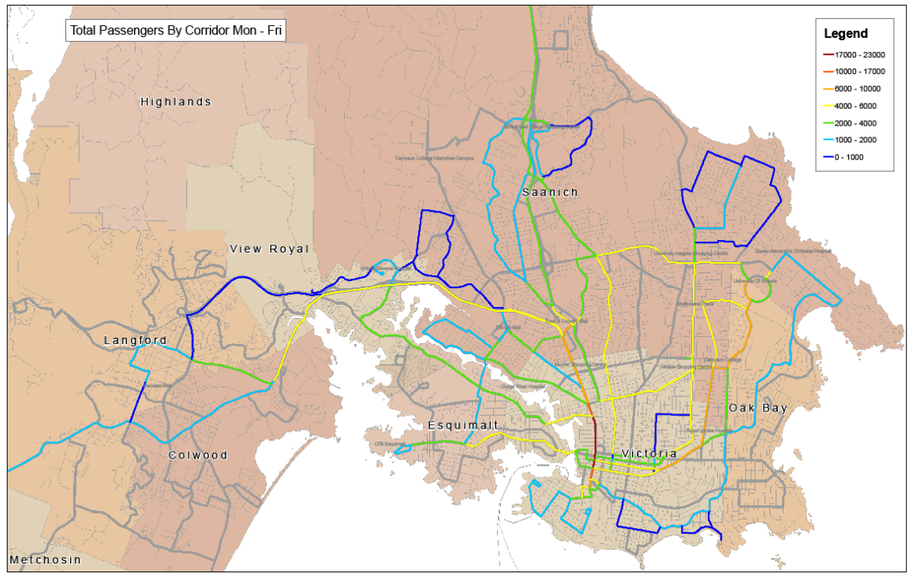


Figure 5.13 - 24-hour Transit Passenger Volume by Corridor

Figures 5.14 and 5.15 show weekday transit passenger volumes (inbound and outbound) by corridor for the AM peak hour (8:00 – 9:00). Inbound, the largest volumes are on routes converging on downtown and along the Douglas Street corridor. Outbound shows significant volumes between downtown Victoria and U-Vic.

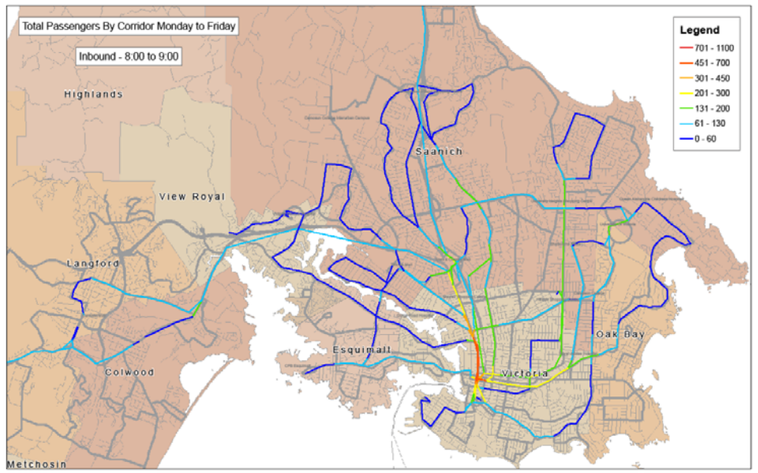


Figure 5.14 - AM Peak Hour Transit Passenger Volume by Corridor (Inbound)

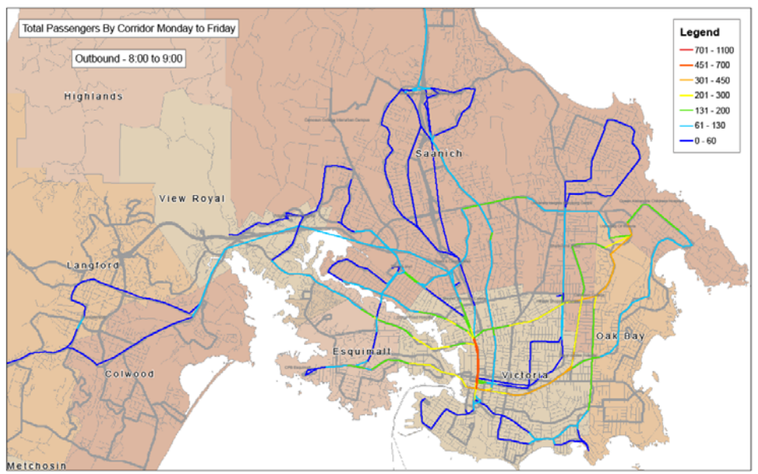


Figure 5.15 - AM Peak Hour Transit Passenger Volume by Corridor (Outbound)

Figures 5.16 and 5.17 show weekday transit passenger volumes (inbound and outbound) by corridor for the PM peak hour (16:00 – 17:00). Inbound, there are strong volumes between downtown Victoria and U-Vic, and along the Douglas Street corridor. Outbound, the largest volumes are from downtown Victoria to U-Vic, along the Douglas Street corridor as far as Royal Oak exchange, and along the Highway 1 corridor to the West Shore.

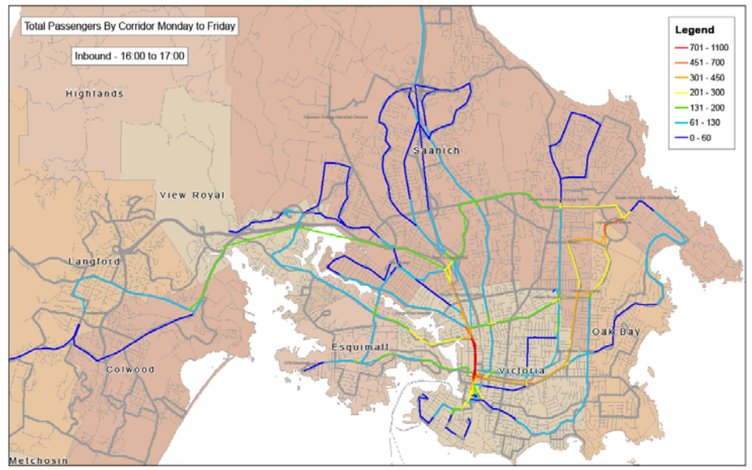


Figure 5.16 - PM Peak Hour Transit Passenger Volume by Corridor (Inbound)

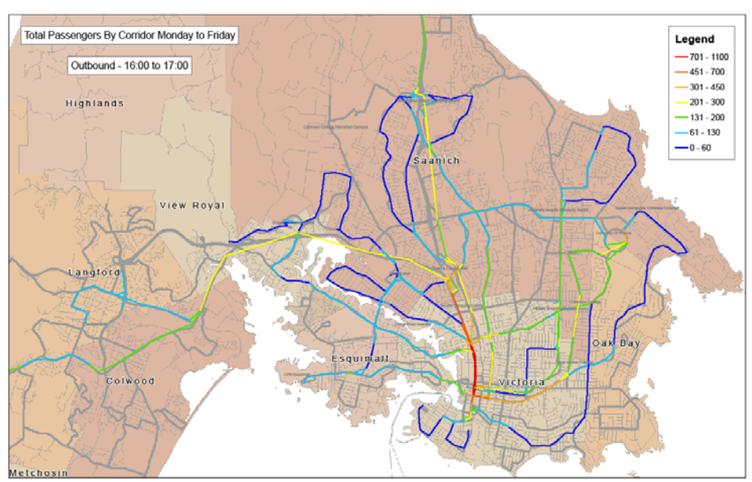


Figure 5.17 - PM Peak Hour Transit Passenger Volume by Corridor (Outbound)

5.6 Transit Stop Passenger Activity

Bus stop passenger activity (boardings and alightings) is measured by automated passenger counters onboard 25% of the Victoria Regional Transit System fleet. Individual trips are sampled to provide the average weekday passenger activity at each stop in the region. Figures 5.18 through 5.19 below identify the most active locations in the transit system. The darker the blue dot the higher the passenger activity volume.

5.6.1 Core Area

Areas of higher passenger activity in the Core area are shown in Figure 5.18. These include the following:

- Douglas St between Fisgard St and Fort St in downtown Victoria shows the greatest amount of bus stop activity.
- Other areas of activity are highlighted in green on the map. These include all the major centres in the Core area (Uptown, Tillicum Mall, Hillside Mall (Hillside-Shelbourne), and McKenzie-Shelbourne) as well as other key intersections (Douglas-Hillside, Hillside-Quadra, and McKenzie-Quadra). These are key nodes and locations where major transit routes intersect, so there is significant transfer activity.
- While it's not a major transfer point, the U-Vic exchange is one of the most heavily used points in the system.
- In addition to the highlighted nodes, there is also significant stop activity along key corridors, including Douglas St, Fort St, Yates St, and Esquimalt Rd.

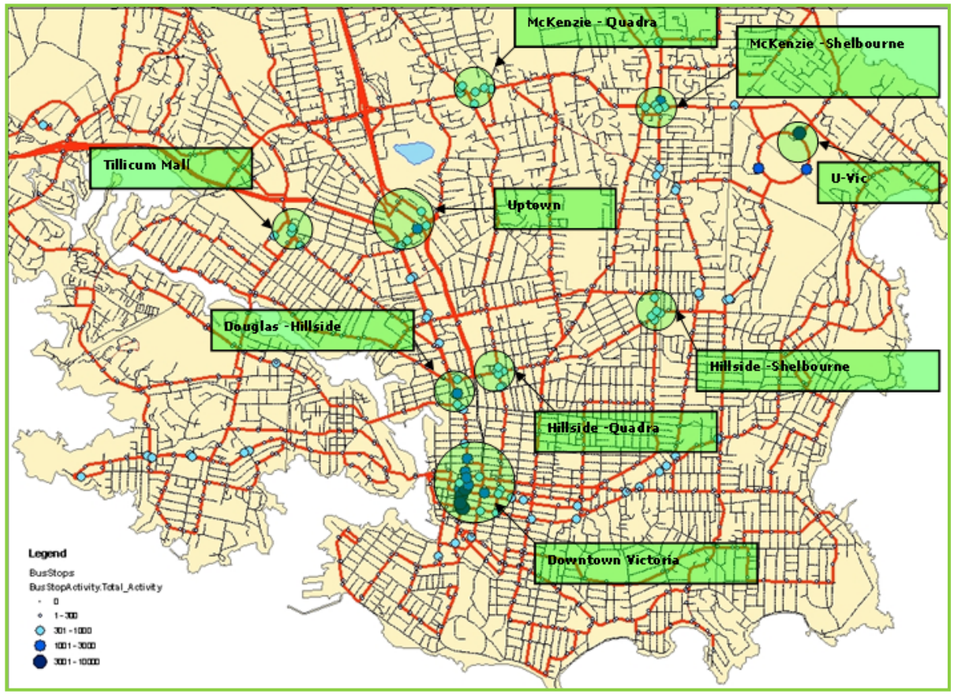


Figure 5.18 - Core Transit Stop Activity Map

5.6.2 West Shore

Areas of higher passenger activity in the West Shore are shown in Figure 5.19[5]. These include the following:

- The Langford / Station Avenue Exchange facilitates transfers between local and regional services
- Juan de Fuca Recreation Centre also has a transit exchange that facilitates transfers between local and regional services. It also contains a park and ride facility and is a sub-regional destination for recreation and community activity.

5.6.3 Lower Activity Stops

Bus stops in suburban and rural areas that are not associated with a trip generating land use such as school or commercial area receive lower levels of passenger activity. Typical suburban bus stops may average 5-30 boardings and alightings a day while rural stops typically average 0-5 boardings and alightings per day.

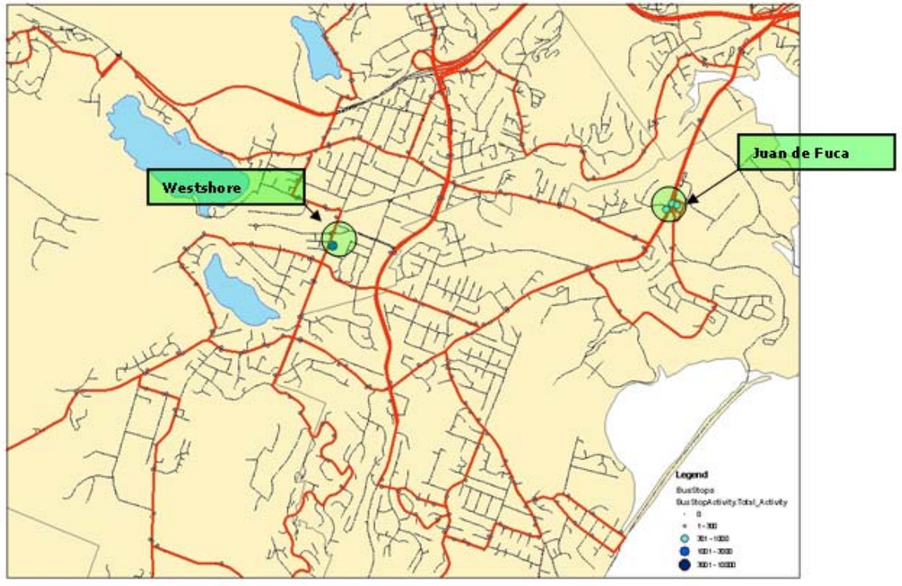


Figure 5.19 - West Shore Transit Stop Activity Map

[5] The exchange servicing Langford was relocated to the Station Avenue location after development of the map presented in Figure 5.19.

6.1 Introduction

Like other growing regions, the CRD has been transitioning away from a traditional “hub and spoke” (monocentric) travel pattern where trips are focused between the central business district and the surrounding suburban areas. Instead, the CRD is making a gradual transition to a more cross-commute oriented system (polycentric) wherein more trips are made within and between the suburban areas.

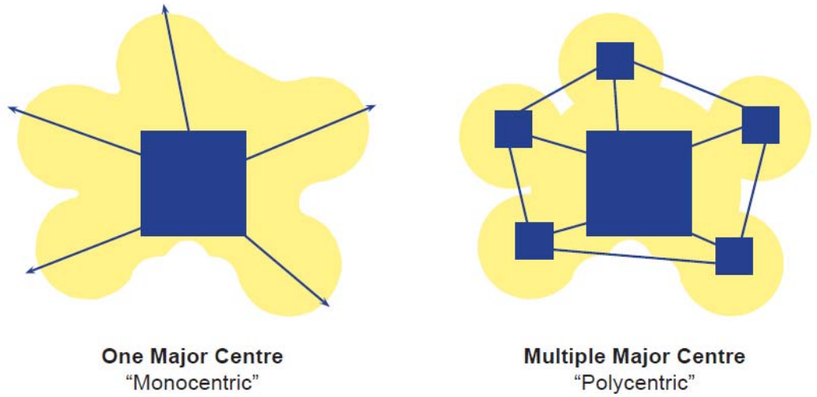


Figure 6.1 - Monocentric vs. Polycentric Development

This type of broad shift in travel patterns is explained by a variety of demographic, social, economic, and geographic factors, but is common to regions such as the CRD where there is generally growing employment, population, and prosperity. This shift is resulting in suburban areas of the CRD becoming self-sustaining communities, less reliant on Victoria for goods, services and employment. This means that more trips by residents of a sub-regional area such as the West Shore are now made locally instead of to Victoria. Furthermore, an increasing number of trips will be made from other sub-regions of the CRD *to* the West Shore. A comparison of the 2001 and 2006 work commuting trips presented previously in section 4.2 indicates that this trend is establishing itself in the CRD.

6.2 Population and Employment Projections

In August 2009, Urban Futures prepared population and employment projections for the CRD. The report, titled “A Context for Change Management in the Capital Regional District – Changing People in a Changing Region – Future Population, Labour Force, Employment and Housing in the Capital Regional District”, provides forecasts for the period from 2008 to 2038.

Population forecasts for the Victoria CMA are summarized on Table 6.1. The Victoria CMA is projected to grow from approximately 349,000 in 2008 to 454,000 in 2038, resulting in an additional 105,000 residents or a 30% increase during this period. This compares with a 50% increase in the region’s population over the previous thirty years. The projected 30% increase represents an annual growth rate of 0.9% or about 3,500 new residents each year. The region’s population is projected to increase by about 10% in each of the next two decades, after which the rate of growth is forecast to decrease to about 7% between 2028 and 2038. The projected overall growth rate is relatively modest. Changes in population distribution over this same period – by geographic area and by age group – will be more significant.

Table 6.1 - Population Projections by Sub-Region

	2008	2018	2028	2038
Core	242,400	254,000	269,700	279,700
West Shore	64,900	84,200	104,700	122,000
Saanich Peninsula	41,400	43,800	47,800	51,800
Total Victoria CMA	348,700	382,000	422,200	453,500

6.2.1 Population by Sub-Area

Figure 6.2 presents the population growth forecasts by sub-region over the period 2008 to 2038. Over the next 30 years, the West Shore is projected to account for more than half of total regional growth (57,000 people), an 88% increase to the area’s population. While the Core area is projected to grow at a much slower rate (15%), it will still account for 37,000 additional residents due to its large base population. The Saanich Peninsula is projected to grow somewhat faster than the Core (25%), and will account for 10,000 additional residents.

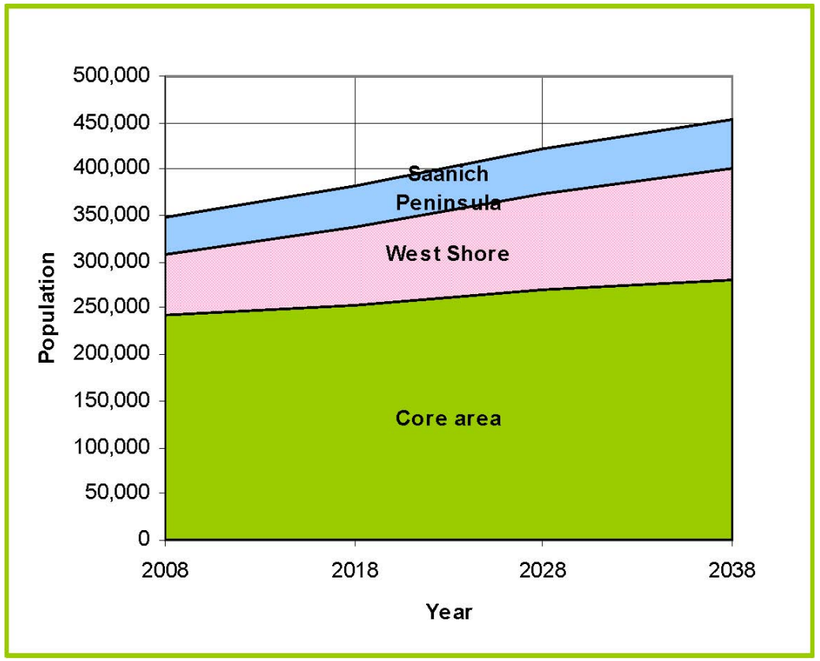


Figure 6.2 - Population Growth by Sub-Region, 2008 - 2038

Note that while in 2008 the West Shore made up 18.6% of the Region's population, this is projected to expand to 26.9% by 2038. Overall, the CRD expects to see a net population increase of about 105,000 residents over the next 30 years. Of those, almost 60,000 are projected to settle in the West Shore, nearly doubling the West Shore's current population in that time period. Comparatively, the Urban Core population will increase by slightly more than 37,000 and the Saanich Peninsula population will increase by slightly more than 10,000.

6.2.2 Population by Age Group

Table 6.2 and Figure 6.3 present the population growth forecasts by age group over the period 2008 to 2038.

Table 6.2 - Population Projections by Age Group

Total	2008	2018	2028	2038
0-14	46,800	49,300	55,500	54,100
15-24	47,000	36,800	37,300	43,400
25-44	92,200	102,000	106,200	99,800
45-64	103,100	112,700	111,900	124,800
65+	59,500	81,300	111,300	131,400
Total	348,600	382,100	422,200	453,500

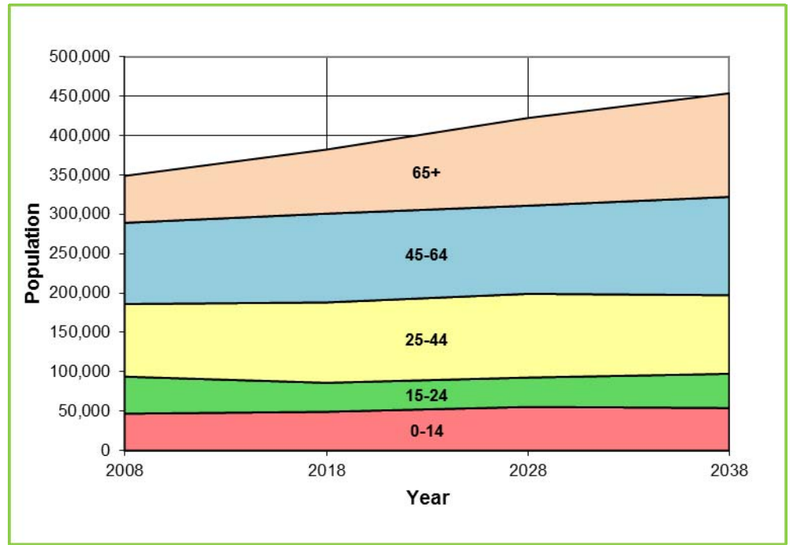


Figure 6.3 - Population Growth by Age Group, 2008 - 2038

The aging of the region's population, especially of the large baby boom generation, will significantly impact the age structure of the region over the next thirty years. While the seniors (65+) population is projected to more than double (+120%) during this time period, all other age groups will grow more slowly than the overall population (30%). In fact the non-seniors population, taken as a whole, will only grow by 11% between 2008 2038, less than one-tenth of the seniors' population growth rate.

The 15-24 age group – a key transit market - is projected to decrease by more than 20% over the next ten years, then grow at about the same rate as the overall population during the following two decades. By 2038, the 15-24 population will still be 8% lower than in 2008. As a result, the share of 15-24 year olds in the Victoria CMA population will shrink from 13.6% to 9.6% in the next decade, and remain roughly at that level through 2038.

This decrease in the 15-24 age group has implications for transit demand. Over the past twenty years, the 15-24 age group in the region has increased by over 20%, and growth in transit use among this group has relied in part on this overall growth in the size of the market. With the 15-24 age group projected to decrease in size over the next thirty years, growth in transit use in this market will have to rely on capturing a greater share of the market.

The seniors population is projected to more than double, from 59,000 in 2008 to 131,000 in 2038. The result is an increase from 17% to 29% of the total population. Growth in the seniors population will account for nearly 70% of all population growth in the region over the next thirty years. The older seniors group (80+) will double from 21,000 to 42,000, and increase from 6% to 10% of the population.

The working age population (aged 25-64) is projected to increase by just 15% over the next thirty years, with nearly three-quarters of this growth among the older working age (45-64) population.

With much faster growth projected among seniors versus the youth and working age populations, it is expected that commuting (to both work and school) will continue to decline in relative importance among reasons for travel in the region. This decline will result in changed travel patterns for the region and will have a significant impact on transit requirements. This trend may be tempered to some extent by greater labour force participation among older workers as people delay retirement due to improved health, personal financial reasons, and projected labour market shortages.

6.3 Employment Projections

Table 6.2 presents the employment growth forecasts by sub region over the period 2008 to 2038.

Table 6.3 - Employment Projections by Sub-Region

	2008	2018	2028	2038
Core	149,900	158,000	163,700	169,900
West Shore	21,700	27,400	31,200	36,000
Saanich Peninsula	21,000	22,300	23,300	24,700
Total Victoria CMA	192,600	207,700	218,200	230,600

Employment in the Victoria CMA is projected to increase from 192,000 in 2008 to 230,000 in 2038, an increase of 38,000 jobs. This 20% increase in employment is slightly less than the projected 23% increase in population, and is indicative of the faster rate of growth among the non-working population.

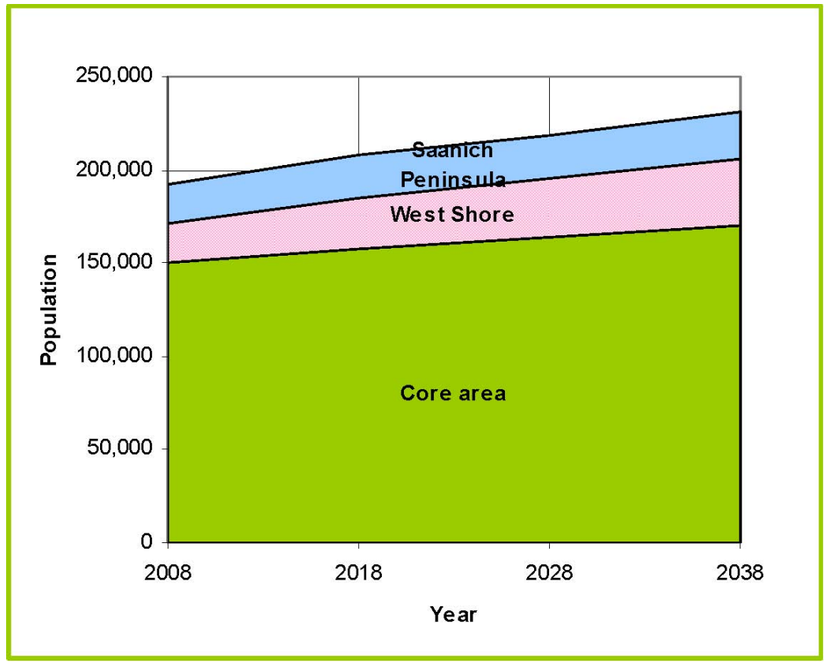


Figure 6.4 - Employment Growth by Sub-Region, 2008 – 2038

While the Core area is projected to experience the slowest rate of employment growth (13%), the 20,000 additional jobs will still account for more than half of all the new jobs created in the region over the next thirty years. The share of jobs in the Core area will drop from 78% in 2008 to 74% in 2038.

The West Shore is projected to have by far the fastest rate of employment growth during this period, with 14,500 additional jobs resulting in a 67% increase. The West Shore will account for more than one-third of new jobs in the region, and will see its share of overall employment increase from 11% to nearly 16%.

Employment in the Saanich Peninsula is projected to grow at a rate close to the regional average, with a modest increase of 3,600 jobs over the next 30 years. The Saanich Peninsula is projected to maintain its share of regional employment at just under 11%.

Employment growth is projected to be slower than population growth in each of the three sub-areas. It is projected that the Core area will continue to have a higher number of jobs relative to population than the regional average, while the West Shore will have a lower number. As a result, the amount of commuting from the West Shore to the core will continue to increase as the population grows, with the number of commuters likely doubling during this period.

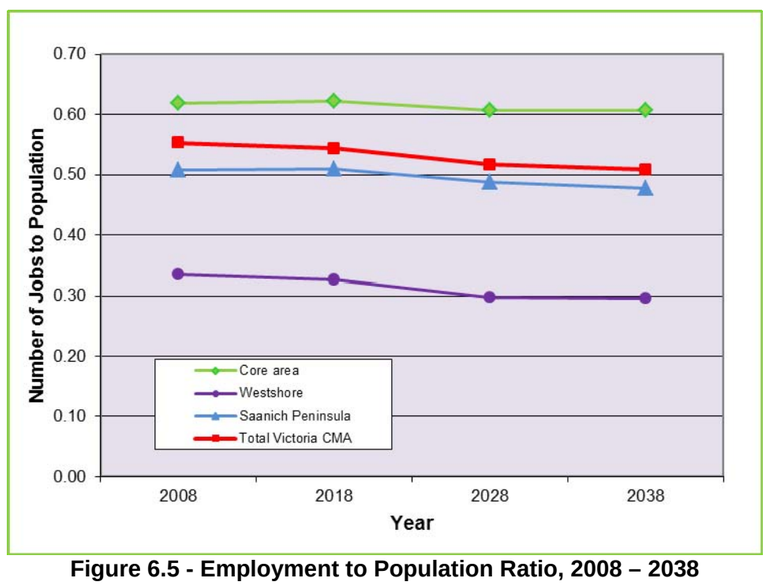


Figure 6.5 - Employment to Population Ratio, 2008 – 2038

6.4 Projected Travel Patterns

In 2007, in an effort to better understand and project the future travel characteristics of the region, the CRD updated its regional transportation model to reflect the 2006 household travel survey and census data. Additionally, a 2038 forecast model scenario was completed. The following is a summary of two way travel flows from each of the regional travel model scenarios along with some brief comments on the model results for each sub region: Tables 6.4 through 6.6 summarize the average daily two way travel flows.

Table 6.4 - 2006 Two Way Travel Flows

2006 Two-way Travel Flows				% of total		
	Core	West Shore	Saan. Pen.	Core	West Shore	Saan. Pen.
Core	743,613	94,764	68,413	65.4%	8.3%	6.0%
West Shore		135,425	6,176		11.9%	0.5%
Saan. Pen.			88,255			7.8%

Table 6.5 - 2038 Two Way Travel Flows

2038 Two-way Travel Flows				% of total		
	Core	West Shore	Saan. Pen.	Core	West Shore	Saan. Pen.
Core	968,419	160,284	86,239	58.2%	9.6%	5.2%
West Shore		305,891	12,712		18.4%	0.8%
Saan. Pen.			129,720			7.8%

Table 6.6 - 2006 - 2038 Increase

2006-2038 Increase				2006-2038 % Increase		
	Core	West Shore	Saan. Pen.	Core	West Shore	Saan. Pen.
Core	224,806	65,521	17,825	30%	69%	26%
West Shore		170,467	6,536		126%	106%
Saan. Pen.			41,465			47%

Overall total trips in the region are projected to increase 46%, from roughly 1.136 million daily trips in 2006 to 1.66 million daily trips by 2038.

Urban Core

- Trips within the Core area are projected to increase by 30% over this time period, well below the overall increase in regional travel.
- Trips within the Core area will still account for more than half of total travel in 2038, but the share of total regional travel will decrease from 65% in 2006 to 58% in 2038.
- Internal Core area trips will account for more than 40% of the growth in regional travel during this period.

West Shore

- Trips within the West Shore are projected to increase 126%, nearly three times the overall rate of increase in regional travel.
- Internal West Shore trips will account for about one-third of the growth in travel in the region, and increase from 12% to more than 18% of all regional travel.

Saanich Peninsula

- Trips within the Saanich Peninsula are projected to increase 47% during this period, very close to the overall rate of increase in regional travel.
- These trips will remain at around 8% of total travel in the region.

Travel between Sub-Regions

- Trips between the West Shore and the Urban Core represent the largest inter-sub-regional travel market. Travel between these sub-regions is projected to increase 69% during this period, significantly faster than the overall increase in regional travel. The share of total travel will increase from 8% to nearly 10%.
- Trips between the Saanich Peninsula and the Core area are projected to increase by just 26% during this period, the lowest rate of increase among all the travel markets. As a result, the share of total regional travel will decrease from 6% in 2006 to 5% by 2038.
- Trips between the West Shore and the Saanich Peninsula represent the smallest travel market, accounting for just 0.5% of regional travel in 2006. However, this market will experience one of the fastest percentage growth rates during the period, with a 106% increase. Only the internal West Shore trips are projected to increase at a faster rate. However, this will remain a relatively small travel market, accounting for 0.8% of all regional travel by 2038.

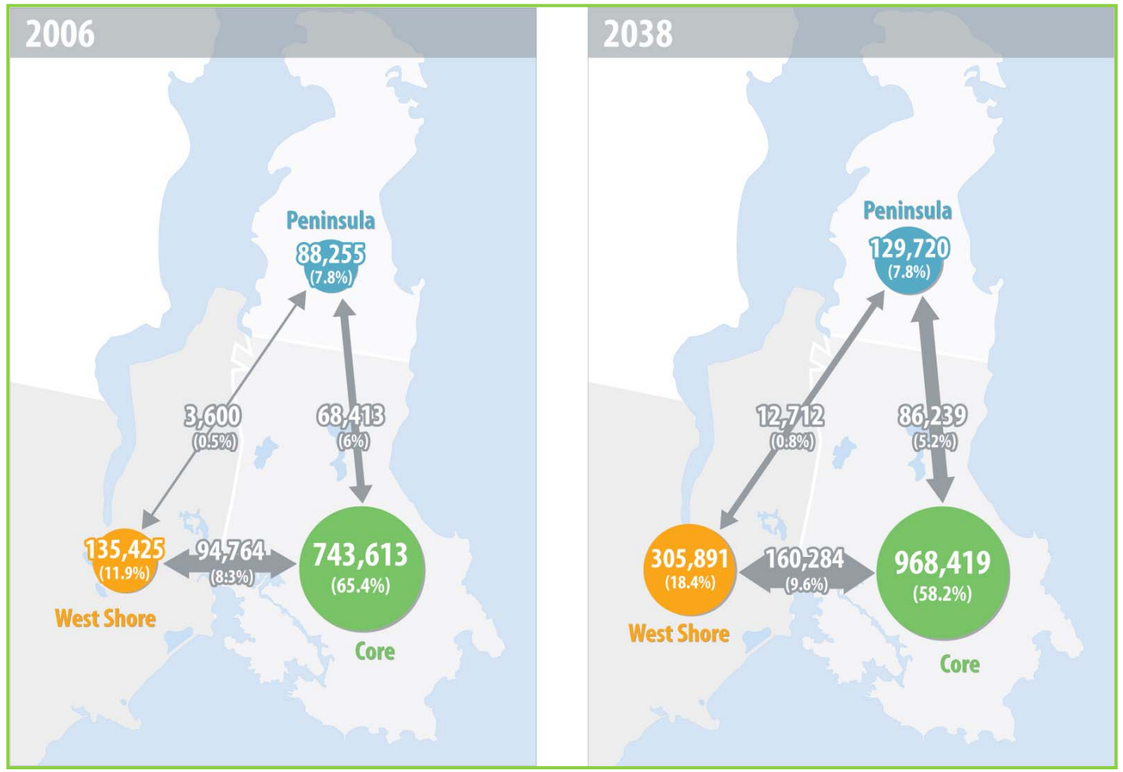


Figure 6.6 - 2006 and 2038 Two Way Travel Flows

6.5 Strategic Implication for Rapid Transit Planning

Key findings from the analysis of the regional data on population, employment and travel growth that directly relate to rapid transit planning include:

- Trips between the West Shore and the Urban Core represent the largest inter-sub-regional travel market. Travel between these sub-regions is projected to increase 69% during this period, significantly faster than the overall increase in regional travel. The share of total travel will increase from 8% to nearly 10%.
- It is projected that the core area will continue to have a higher number of jobs relative to population than the regional average, while the West Shore will have a lower number. As a result, the amount of commuting from the West Shore to the core will continue to increase as the population grows, with the number of commuters likely doubling during this period.
- With the 15-24 age group projected to decrease in size over the next thirty years, growth in transit use in this market will have to rely on capturing a greater share of the market.
- With much faster growth projected among seniors versus the youth and working age populations, it is expected that commuting (to both work and school) will continue to decline in relative importance among reasons for travel in the region. This decline will result in changed travel patterns for the region and will have a significant impact on transit requirements.
- Overall, the CRD expects to see a net population increase of about 105,000 residents over the next 30 years. Of those, almost 60,000 are projected to settle in the West Shore, nearly doubling the West Shore's current population in that time period. Comparatively, the Urban Core population will increase by slightly more than 37,000 and the Saanich Peninsula by slightly more than 10,000.
- Trips within the Core area are projected to increase by 30% over this time period
- Trips within the Core area will still account for more than half of total travel in 2038
- Internal Core area trips will account for more than 40% of the growth in regional travel during this period.

It is recommended that planning for the development of a rapid transit service for the capital region address the following strategic objectives:

- Increasing the capacity to move people from the west shore to the urban core area
- Providing a reliable all day service that will address the projected change in travel patters as the percentage of the population in the seniors category
- Still delivering a highly reliable and attractive service for commuters to the core given the projected high number of jobs expected to remain in the urban core area
- Provide a high capacity service in the core area to address the fact that internal trips within the core will account for over half of all regional trips by 2038.